

CHINA

A stylized, hand-drawn map of China in shades of green and white. A prominent river flows from the top center towards the bottom right. The land is divided into numerous rectangular fields, some with diagonal hatching. Several small sailing ships are depicted on the river. In the lower-left corner, there is a cluster of buildings with orange roofs, possibly a town or industrial area. The overall style is that of a mid-20th-century educational or travel book illustration.

—A Geographical Sketch

C H I N A
A Geographical Sketch

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The present booklet of 17 articles is based on the briefer one which we published in 1972 under the title "Geography of China." Most of the articles are taken from the magazine *China Reconstructs*, though some have been newly translated or revised.

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SKETCH MAP OF CHINA



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General Outline

THE People's Republic of China is situated in the eastern part of Asia, on the west coast of the Pacific Ocean. It has a vast territory of 9.6 million square kilometres. The distance from east to west measures over 5,000 kilometres, and from north to south over 5,500 kilometres. When the sun rises over the Wusuli River in the northeast, the Pamirs in the west are still dark. When blizzards wrap the north in winter, spring sowing is under way on Hainan Island in the south. The Tsengmu Reef, the southernmost part of China, is close to the equator and stays hot the year round.

China borders on Korea in the east; the Soviet Union in the northeast and northwest; Mongolia in the north; Afghanistan, Pakistan, India, Nepal, Sikkim, Bhutan in part of the west and the southwest; Burma, Laos and Viet Nam in the south. Across the sea to the east and southeast it faces Japan, the Philippines, Malaysia, Indonesia, etc.

Administratively, China now consists of three municipalities directly under the central authority, 22 provinces, and five autonomous regions. They are:

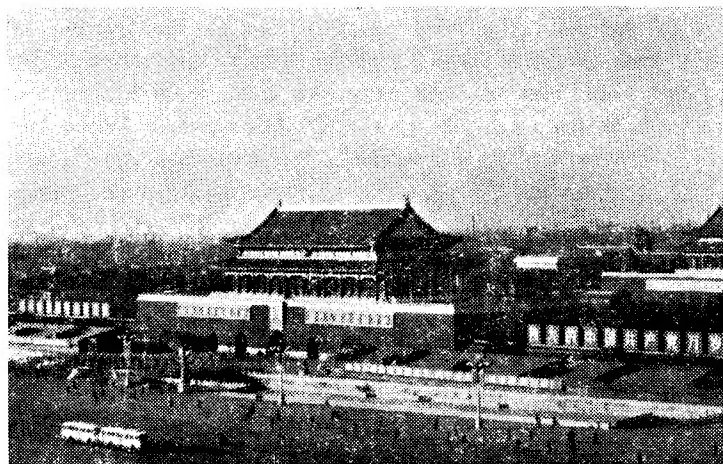
Peking, Shanghai and Tientsin municipalities;

Hopei, Shansi, Liaoning, Kirin, Heilungkiang, Shensi, Kansu, Chinghai, Shantung, Kiangsu, Chekiang, Anhwei,

Kiangsi, Fukien, Taiwan, Honan, Hupeh, Hunan, Kwangtung, Szechuan, Kweichow and Yunnan provinces;

Inner Mongolia Autonomous Region, Ningsia Hui Autonomous Region, Sinkiang Uighur Autonomous Region, Kwangsi Chuang Autonomous Region, and Tibet Autonomous Region.

Peking, the national capital, is situated at the northern edge of the North China Plain. It was built in 937 A.D. and has been a capital city off and on for 800 years. It is China's political and cultural centre, with many ancient architectural monuments.



Tien An Men, Peking.

The People's Republic of China is a unified multinational country. On its vast land live 700 million hard-working and courageous people. The Han nationality is the most numerous, making up 94 per cent of the total population. The rest consist of more than 50 fraternal nationalities,

including Mongolian, Hui, Tibetan, Uighur, Miao, Yi, Chuang, Puyi, Korean, Manchu and Kaoshan. The minority nationality peoples are widely scattered, the more concentrated communities being in the northwest, southwest and northeast. Led by the great leader Chairman Mao Tsetung and the Chinese Communist Party, the people of China's various nationalities are united as brothers in the socialist revolution and the struggle to build their motherland, and there has been formed a great unity of all the nationalities.

China's topography varies from cloud-capped peaks to basins of different shapes and sizes, from wide, rolling plateaus to low, broad plains. There are great deserts and wilds in the northwest, while rivers, streams and lakes stud the plains on the middle and lower reaches of the Yangtze River. The topographical outline is a three-step west-east staircase. It begins with the Chinghai-Tibet Plateau 4,000 metres above sea. Crossing the Kunlun and Chilien ranges on the plateau's northern edge and the Hengtuan Mountains on its eastern edge, the land slopes away to highlands and basins mostly from 2,000 to 1,000 metres above sea; then it descends further eastward to hilly regions and plains below 1,000 metres.

In China, some areas are warm the year round while others have long winters and short summers. Most of the land lies in the temperate zone with four distinct seasons. A combination of high temperatures and plentiful rain provides favourable conditions for farming.

In the east, winter often brings a dry, cold northwest wind from the hinterland towards the sea; summer often sees a hot, moist southeast wind from the sea. The northwest, being far from the sea, has comparatively little rain and its temperature varies greatly even in the same day. "Fur coats in the morning, gossamer at noon" describes the arid regions in Sinkiang. On the other hand, the temperature on the

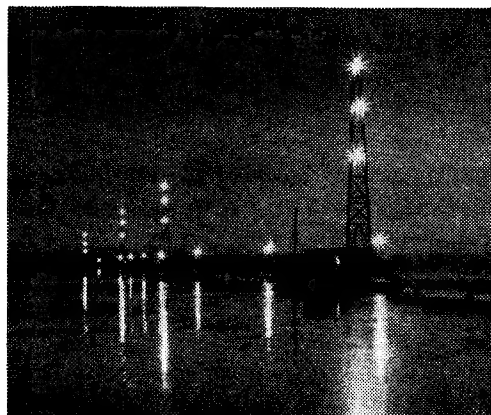
Chinghai-Tibet Plateau in the southwest is relatively low because of its high altitude. Both Lhasa in the west and Hangchow in the east are at latitude 30° N., but the average July temperature in the former is 15° C. while in the latter it is 28° C.

Influenced by the monsoons, the temperature in the north and south varies greatly in winter but little in summer. In January the difference in the average temperature in Harbin in the northeast and Canton in the south is as much as 33° C. When it is still cold winter along the banks of the Sunghua River, the Pearl River valley has welcomed in spring. But in July the difference is only 5° C., and swimming is done in both rivers. With rainfall decreasing gradually in a southeast-northwest direction, raincoats, a must in southeast China, are practically useless in most of the northwest.

China has rich water resources. From the Changpai Mountains in the northeast to the Hengtuan Mountains in the southwest there exist huge potentials for generating hydraulic power and building water conservancy projects. Though the northwest is dry, many glaciers and year-round snows on its high mountains provide favourable conditions for building irrigation works. The Yangtze, one of China's main rivers, originates on the Chinghai-Tibet Plateau and flows eastward across the length of China through one autonomous region, eight provinces and one municipality into the East China Sea. It is a vital artery for transport, and a rich source of water for irrigation and hydro-power.

China's east and south coasts lie along the Pohai, Yellow, East China and South China seas. The Pohai is an inland sea, the others merging with the Pacific Ocean. On the vast sea lie scattered more than 5,000 islands, the biggest being Taiwan and Hainan, long regarded as China's treasure islands for their abundant resources. Fine natural harbours, like

pearls, dot the long, zigzag coastline from the mouth of the Yalu River on the China-Korea border to the mouth of the Peilun River on the China-Viet Nam border. These seas, islands and harbours are vital to China's national defence, contacts with other countries and the exploitation of marine resources.



The Taching Oilfield at night.

China has great mineral wealth. Especially iron and manganese; tungsten, antimony, tin, copper, lead, zinc, mercury, molybdenum and aluminium; coal and petroleum — all these are abundant and of good quality.

Minority Nationalities

CHINA is a unified multi-national socialist country. Over 50 minority nationalities make up about 6 per cent of the total population, the rest being Han. Of these, the Mongolian, Hui, Tibetan, Uighur, Miao, Yi, Chuang, Puyi, Korean and Manchu each numbers over a million people. Some of the smaller groups, such as the Olunchun, Penglung, Tulung and Hoche nationalities, have only a few thousand or a few hundred people.

China's minority nationalities, while making up a small percentage of the population, are spread over 50-60 per cent of its territory. The Korean, Manchu and Olunchun live mainly in the three northeastern provinces of Kirin, Liaoning and Heilungkiang. The vast region stretching from Inner Mongolia through Ningsia and Kansu to Sinkiang is inhabited by a dozen or more nationalities including Mongolian, Hui, Uighur, Kazakh, Tunghsiang and Khalkhas.

Tibetan, Tu and Sala peoples live on the Chinghai-Tibet Plateau in Tibet, Chinghai and western Szechuan. The southwestern provinces of Yunnan, Kweichow and Szechuan, and Hunan in central-south China, are the home of some 20-30 nationalities including Miao, Yi, Puyi, Tung, Pai, Tuchia, Hani and Tai. The Chuang, Yao, Li and She live mainly

in Kwangsi, Kwangtung and Fukien in the south. The Kaoshan people live in Taiwan Province.

National Equality

Before liberation the people of China's minority nationalities were, like the Han, oppressed by the Kuomintang reactionaries in collaboration with the imperialists. But, led by Chairman Mao, the people of all nationalities united in the struggle to overthrow the reactionary rule of imperialism and the Kuomintang. This struggle culminated in the founding of the People's Republic of China on October 1, 1949. Since then democratic reforms have been carried out in the minority nationality areas, liberating the poor herdsmen, serfs and slaves from their particular class enemies, such as the three Tibetan overlords (the reactionary local government, nobles and lamaseries) and the reactionary Mongolian princes and nobles, herd owners and reactionary religious leaders.

The application of Chairman Mao's policy concerning nationalities makes all of China's nationalities entirely equal. Both Han chauvinism and local nationalism are opposed.

Regional autonomy is practised where the minority nationalities live in compact communities. There are five autonomous regions equivalent to provinces: Inner Mongolia, Ningsia (Hui), Sinkiang (Uighur), Tibet and Kwangsi (Chuang). In addition there are many autonomous *chou* and autonomous counties ("banners" in Mongolian areas). These autonomous areas are all inseparable parts of the People's Republic of China.

After scrapping the feudal system of exploitation and carrying out democratic reforms, the minority nationalities proceeded to organize mutual aid and co-operation, and to set up people's communes both in agricultural and pastoral areas, as was done in Han areas. They also carried out

socialist transformation of the ownership of the means of production in urban handicrafts and capitalist industry and commerce. Following this they have continued to carry the socialist revolution forward on the political and ideological fronts. Because of the rapid development of the revolution, Tibetans and the Yi living in the Taliang and Hsiaoliang mountains of southwestern Szechuan were liberated from serfdom and slavery and skipped several centuries to enter into the new era of socialism.

Guided by Marxism-Leninism-Mao Tsetung Thought, the people of all nationalities have greatly raised their political level in the course of revolutionary struggle and constant study. Many advanced elements have appeared, of whom quite a few have joined the Chinese Communist Party and some have been elected as members or alternate members of Party committees at all levels, right up to the Central Committee. The corps of minority nationality cadres is growing. Revolutionary committees at all levels and the National People's Congress have minority nationality people as working personnel, representatives or deputies. United, the people of all nationalities govern state affairs together. The Chinese People's Liberation Army also has a fair number of commanders and fighters from minority nationalities, who defend the motherland's frontiers shoulder to shoulder with the Han.

Great Change in Production With the energetic help of the state, and especially under the impact of the Great Proletarian Cultural Revolution, the backward production of the minority nationality areas has advanced tremendously. Both sides of the Tarim River in southern Sinkiang used to be uninhabited alkaline land. With the development of water conservancy works and the plant-

ing of protective forest belts, however, this land has been turned into high-yield fields; many new paddy fields yield 1,100 *jin* (one *jin* equals 1/2 kilogramme) of rice per *mu* (1/15 hectare).

Since carrying out democratic reforms in 1959, the Tibet Autonomous Region has successively reaped good harvests. Phari, lying among snow-capped Himalayan peaks at an altitude of 4,300 metres, has a mean annual temperature of 0.2° C. and a frost-free period of only over 30 days. Under the feudal serf system, Phari was considered impossible for agriculture and never grew any grain. Now it plants large areas to *chingko* (a highland barley) and raises more than enough grain to meet its own needs.

The minority nationalities in Yunnan and Kweichow provinces have abandoned their old slash-and-burn cultivation method, extensive use of primitive wooden ploughs and hoes, with no fertilizer. They have developed a mass movement for land improvement, turning slopes into terraced fields, and ordinary fields into paddy fields. This has not only raised the per-*mu* yield but effectively controlled soil erosion and water loss, leading to a comprehensive development of farming, forestry and animal husbandry.

Ending several thousand years of nomadic existence, the people of various nationalities in some of the pastoral areas of Inner Mongolia, Chinghai and Sinkiang now live in permanent homes while engaged in grazing their flocks. As local conditions allow, they have started growing crops, bringing about agricultural development in addition to animal husbandry. Every year local commune members work on projects to sink wells, dig irrigation canals and create windbreaks, improving formerly degenerating prairies and enlarging the pasturelands. Feed storage stations, stables, breeding and veterinary centres have been set up. Herds have increased

several fold since liberation, providing ever-increasing supplies of animal products to the state.

The Olunchun people are hunters who used to wander through the forests of Heilungkiang Province. Since liberation they too have settled down. They have developed hunting but also learned to farm, becoming more than self-sufficient in grain.

The minority nationality areas were very poor in industry before liberation. Some places could not even thread a screw. Since liberation modern industry has gradually developed on a broad scale in every autonomous region and *chou*. Inner Mongolia's iron and steel and machine-building, Ningsia's coal-mining and Sinkiang's oil and textile industries already occupy important places in China's economy. Before liberation Tibet did not have a single modern factory. Since then, and especially since the democratic reforms, the liberated serfs and slaves together with Han workers have overcome all kinds of difficulties to set up many branches of local industries. The hundred small and medium factories and mines there include coal, hydro-power, machine-building and repair, chemicals, building-materials, textiles, tanning and paper making. The ranks of the first generation of Tibetan workers already number several tens of thousands.

Many minority nationality areas have railways and networks of highways.

Development in Education and Health

Many minority nationality areas have universal primary education, and some have gone on to make secondary education universal. All the autonomous regions and some of the autonomous *chou* have institutes of higher learning. The Yenpien Korean Autonomous *Chou* in Kirin

has set up a relatively comprehensive educational system from primary school to university. Education serves proletarian politics and is combined with productive labour.

All minority nationalities are free to use their own spoken and written languages. In the past dec-

ade and more, Chairman Mao's works, and literary writings and textbooks have been translated into the Mongolian, Tibetan, Uighur, Korean, Kazakh and other languages. Inner Mongolia, Sinkiang, Tibet and Yenpien publish newspapers in their local minority languages, and minority nationality areas have broadcasts in their own languages.

In the old society there were no medical facilities in the minority nationality areas, and venereal diseases, bubonic plague, cholera and malaria were widespread. The sick could only pray to the gods, and the population of many nationalities dropped sharply with each passing year. The Mongolians, for example, had an infant mortality rate as high as 98 per cent in some places. After liberation, medical institutions, health stations and anti-epidemic centres were established throughout Inner Mongolia, reversing this trend, and the



A rousing welcome for newcomers to the Central Institute for Nationalities, Peking.

population has increased. Following Chairman Mao's instruction, **"In medical and health work, put the stress on the rural areas,"** large numbers of medical workers have gone to the countryside and pastoral areas since the Cultural Revolution to help prevent and cure disease and to conduct elementary medical training classes. Besides, a system of co-operative medical service has been introduced in the communes. As a result, medical and health work has made rapid progress in the minority nationality areas.

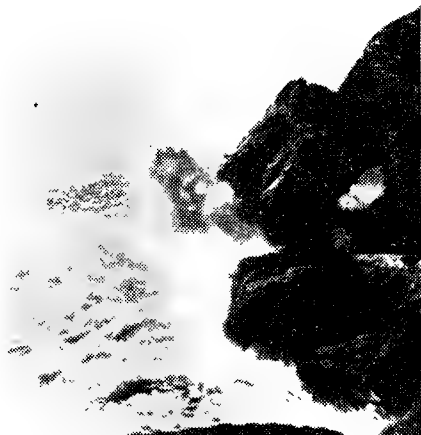
Coasts, Islands and Harbours

CHINA not only has a vast land area, but also a long and much-indented coastline studded with islands. Numerous harbours lie like pearls along the coastline and islands.

The seas along China's coast are the marginal seas of the western Pacific, close to the east Asian continent. They lie between China and Korea, Japan's Kyushu and Ryukyu Islands in the east, and the Philippines and the island of Kalimantan in the south. They are the Pohai Sea, the Yellow Sea, the East China Sea and the South China Sea. The first three lie to the east of the Chinese mainland and the last to its south.

The Pohai is an inland sea reaching deep into China's mainland. It is almost completely enclosed by the Liaotung Peninsula on the north and the Shantung Peninsula on the south. Caught between the two peninsulas are the Pohai Straits in which lie the Miaotao Islands at the entrance to the Pohai Sea, controlling the passage to the Yellow Sea. Peking, the capital of China, is situated west of the Pohai Sea.

The Yellow Sea, east of the Pohai Straits, extends from the mouth of the Yalu River in the north to a line running from the north bank of the mouth of the Yangtze to Korea's Cheju-do Island in the south.



On the South China Sea coast.

The East China Sea is contiguous with the Yellow Sea in the north, and stretches southward to a line running from the Chenhai Cape in the Amoy Bay of Fuki Province to the mouth of the Choshui River in Taiwan Province. It runs eastward to Japan's Kyushu and Ryukyu Islands.

The South China Sea touches Kwangtung, Fuki and Taiwan provinces in the north, with the line running from the Chenhai Cape to the mouth of the Choshui River as a demarcation between it and the East China Sea, and extends south to the waters around Tsengmu Reef. Linked with the Pacific and Indian oceans by the Bashi Channel, the Sulu Sea, the Java Sea and the Straits of Malacca, it is a passage vital to China's trans-oceanic communications with countries in Asia, Oceania, Africa and Europe.

Numerous islands stud China's vast sea area.



Jihyueh Lake, famous scenic spot in Taiwan Province.

Taiwan is the largest of these, with Hainan next in size. The islands, islets, reefs and beaches that make up the South China Sea island groups are in turn subdivided into four groups, namely the Tungsha, Sisha, Chungsha and Nansha islands. Tsengmu Reef of the Nansha Islands at the southernmost tip of China is one of the larger ridges of sand in the sea. Largely formed of coral skeletons, these looming islands and reefs add much to the colourful tropical scene.

Like the land surface, the floors of the Pohai, Yellow and East China seas slope gently from northwest to southeast. The average depth of the Pohai Sea, which is the shallowest, is about 20 metres, of the Yellow Sea 40 metres, of the East China Sea several hundred metres. The floors of these seas are extensions of China's eastern mainland submerged in the waters.

The Tiaoyu and other islands belonging to China are located in the East China Sea northeast of Taiwan. Between them and the Ryukyu Islands is a 2,000-metre deep trench.

The South China Sea is a relatively complete deep-sea basin. The average depth of its central part is 3,000 metres, with some areas exceeding 4,000 metres.

Coasts China's coastline extends from the mouth of the Yalu River on the China-Korea border in the north to the mouth of the Peilun River on the China-Viet Nam border in the south, a long arc with the southeast section projecting. Many islands also have long coastlines.

The coastline may be roughly divided into two types, sandy and rocky, with Hangchow Bay as the line of demarcation. North of this line, the coast is mainly silt-mud. The structure is simple and the beaches are generally smooth,

good for opening salt fields to provide rich raw material for the chemical industry. This coastal area was formed by silt carried down by the Yellow, Haiho and other rivers to their mouths. This type of coastline spreads over large areas, the west coast of Pohai Bay being the most typical. The constant piling up of silt and mud and the resulting extension of the land opens up broad prospects for reclaiming land for farming by building sea dykes.

South of Hangchow Bay, especially in Chekiang and Fukien provinces, the mountain ranges run along the coast and close to it. The continuous pounding of the waves against them has formed rocky jagged coasts which are strategically important and favoured with numerous islands and islets, and big, deep natural harbours.

Rocky coasts are also found north of Hangchow Bay along the Shantung and Liaotung peninsulas and near the cities of Chinwangtao and Hulutao on the north shore of the Pohai Sea.

There are also mangrove coasts along Fukien and Kwangtung provinces, coral reef coasts along Taiwan and the South China Sea islands, and fault coasts on the east side of Taiwan, adding to the variation in China's sea coast.

Harbours There are many fine harbours either north or south along China's sea coast. They are of two types, according to their location.

One kind is situated in the mouths of big rivers. The three biggest of this type are the Tientsin Harbour on the lower reaches of the Haiho River west of Pohai Bay, the Shanghai Harbour at the mouth of the Yangtze where the Whangpoo and Woosung rivers merge, and the Whampoa

Harbour at Canton in the Pearl River Delta at the confluence of the Tungkiang, Peikiang and Sikiang rivers.

These three harbours are connected with the broad hinterland by rivers, railways, highways and airlines. The port of Shanghai serves the largest hinterland, which includes provinces of the Yangtze and Huai river valleys and some of the southeast coastal provinces. It also leads in the volume of flow of goods. Tientsin port serves north China, Inner Mongolia and parts of the northwest. It is a junction for exchange of goods between north and south and an important foreign trade port. Whampoa Harbour, serving the vast region of south China, is a junction for water and land transport and the biggest foreign trade port there.



The port of Shanghai.

The second type is exemplified by the natural harbours on the bays such as Talien Harbour on the Liaotung Peninsula, Tsingtao Harbour on the Shantung Peninsula, Keelung Harbour in Taiwan and Chan-

kiang Harbour on the Leichow Peninsula. With wide and deep waters, they are mostly sheltered by islands and are linked with the hinterland by railways.

The Chinese working people have a long history of utilizing marine resources and developing ocean navigation. Sea-salt production and coastal fishing existed on a fairly large scale as early as 770 B.C. About 2,000 years ago the

people began building ships and charting sea routes. By the early 12th century they were widely using the compass in navigation, and ocean shipping had reached the east coast of Africa. From 1405 to 1433, fleets of ships under China's famous navigator Cheng Ho (1371-1435) made seven voyages to regions west of the South China Sea and established friendly relations with over 30 countries in Asia and Africa.

With imperialist aggression on China by sea in the middle of the 19th century, Chinese sea harbours came under the control of the British, American, Japanese and other imperialists who used them to siphon off the lifeblood of the Chinese people. After liberation in 1949, these harbours were returned to the people and became the bases for developing transoceanic communications, fishing and trade with foreign countries. For over 20 years the Chinese people under Chairman Mao and the Chinese Communist Party have renovated and expanded the principal harbours, reconstructed the Hsinkang Harbour at Tangku and built the Chankiang Harbour, which is of vital importance in foreign trade. All this has opened a new page in the history of Chinese harbours.

Mountains

CHINA'S mountain ranges crisscross the country in a complex pattern. They may be divided into the following three groups according to the direction in which they run.

East-West Ranges China's most important ranges all run in this direction. This group includes nearly all the magnificent high ranges of western China — the Altai, Tienshan, Kunlun, Karakoram, Kangkar Tesi, Himalaya, Chinling and Nanling, among the major ones.

The Altai Mountains, crossing the northern tip of the Sinkiang Uighur Autonomous Region, are generally over 3,000 metres above sea level. They gradually decrease in height as they run southeast to the People's Republic of Mongolia.

The Tienshan Mountains run across the middle of Sinkiang and divide it into the Dzungaria and Tarim basins. Between 250 and 300 kilometres wide from north to south and 3,000-5,000 metres in height, the parallel ranges of cloud-enveloped peaks enclose some depressed basins such as the well-known Ili Valley in the west and the world-famous Turfan Depression in the east, 154 metres below sea level. The

peaks are around 7,000 metres in the west and gradually become lower as the range runs eastward. Continuing east past Urumchi, it gradually disappears into the desert. Due to the influence of air currents from the Arctic Ocean, the northern slopes of the Tianshan range are moister than the southern ones. The Tianshan Mountains are the major pastoral area in Sinkiang.

The Kunlun Mountains: Starting from the Pamirs in the west, they extend eastward to the western edge of the Szechuan Basin. Their relatively flat tops are generally over 5,000 metres, and quite a few are 7,000 metres. There are many glaciers in the western section. The eastern section, being far inland, has an extremely dry climate.



The Kunlun Mountains.

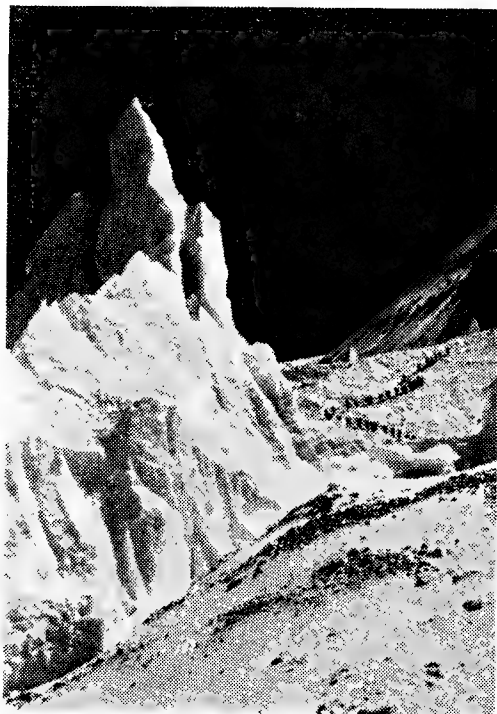
As it extends eastward, the Kunlun range splits into three branches. The northern branch is the Altyn range,

which further east becomes the Chilien Mountains. The central branch is the Chimen Tag range and the southern branch is the Koko Shili range, which further east becomes the Bayan Kara range. The Altyn and Chilien mountains make up the northern rim of the Chinghai-Tibet Plateau. The Chilien Mountains, located south of the Kansu Corridor, are generally over 4,000 metres above the sea. The Tsaidam Basin, surrounded by the Altyn and Chimen Tag ranges, is a depression in the Chinghai-Tibet Plateau. The Bayan Kara range is the watershed between the Yangtze and Yellow rivers.

The Karakoram Mountains: Starting in southwestern Sinkiang, they extend eastward into northern Tibet where they run southeast. The snow-clad peaks average over 6,000 metres, with massive glaciers in between.

The Kangkar Tesi Mountains: Situated north of the Yalutsangpo River, they are the watershed between the continental plateau drainage system and the Indian Ocean drainage system. The peaks are around 7,000 metres.

The Himalaya Mountains: Standing along the southern rim of the Chinghai-Tibet Plateau, they form an arc protruding southward. The main part of the range lies in China. "Himalaya" means "Abode of Snow" in the Tibetan language. The average height of these mountains is more than 6,000 metres. West of the town of Yatung is a string of peaks over 8,000 metres, among them the world's highest, 8,882-metre Jolmo Lungma, located on the China-Nepal border. In 1960 Chinese mountaineers for the first time reached the top of Jolmo Lungma by way of its northern slope. In 1966 and 1967 China made an all-round, multi-purpose survey of it, laying a scientific basis for developing and utilizing its natural resources.



A surveying team in the Mt. Jolmo Lungma region.

Along the northern foothills of the Himalayas is the Yalutsangpo River flowing from west to east, which at longitude 95° E. turns south and cuts the Himalayas into magnificent gorges.

The string of lofty Himalayan peaks blocks the moist air currents blowing up from the Indian Ocean. As a result, the southern slopes of the Himalayas have abundant rainfall and a

lush covering of vegetation while the northern slopes, in sharp contrast, are dry with sparse vegetation. As the mountains increase in height the natural panorama changes in a series of belts of differing vegetation. Because the mountains rise abruptly here, these belts are unusually pronounced.

When one ascends from a river valley at 2,000 metres to a peak of over 8,000 metres, the natural panorama changes rapidly although the horizontal distance covered is only a few dozen kilometres. In the warm moist lowlands broad-

leaf evergreen trees thrive, forming a forest belt. With increasing altitude, the warmth-loving broad-leaf trees become fewer and disappear, while the hardy needled types gradually appear and become dominant, forming another forest belt. Further up, because of insufficient warmth, the trees are replaced by brush. Still higher, this gives way first to meadows and then to a belt of lichen. The highest region is one of permanent snow. The changes in scenery one sees in ascending the mountain are the same as those one would see if one were to travel from the warm south China to the frigid North Pole. It is a unique scene of nature.

The Chinling Mountains extend for about 1,500 kilometres across central China from southern Kansu in the west to between the lower reaches of the Huai and Yangtze rivers in the east. These mountains are the watershed between the Yellow and Yangtze river valleys. The stretch in Shensi is typical, with height averaging between 2,000 and 3,600 metres. The northern slopes are steep, while the southern slopes rise more gently. While making it difficult for moist ocean air currents to penetrate deep into the northwest, the Chinling range also keeps the cold northern air from descending further south, so that southern Shensi and Szechuan are hit less often by fierce cold waves. The Chinling Mountains thus form a natural dividing line between China's warm-temperate and sub-tropical zones. The rivers on the southern slopes are long, while those on the northern slopes are mostly short and small.

The Nanling Mountains: Running eastward from northern Kwangsi and then through Hunan and Kwangtung to southern Kiangsi, they separate the valleys of the Yangtze and Pearl rivers. Generally over 1,000 metres, they reach 2,000 metres at the highest point. Among the granite moun-



Scene in the Wuling Mountains.

Dynasty, the Hsingan Canal was built in the northeast corner of Kwangsi to cut through these valleys to connect the drainage systems of the Yangtze and Pearl rivers. Today's Hunan-Kwangsi Railway also follows this route. Though not very high, the Nanling Mountains block northern cold waves to a certain extent, so that to the south the climate is warm and the fields are green all year round, making the region one of China's main growers of tropical and sub-tropical crops.

Northeast-Southwest Ranges

These are found in two chains located mainly in the eastern part of China. The eastern chain includes the Changpai Mountains in northeast China as well as the ranges which extend through the Liaotung and Shantung peninsulas to Chekiang and Fukien provinces. The range in Fukien which runs parallel with the seacoast is most typical. The Changpai Mountains, the highest range in the chain, have peaks reaching over 2,700 metres, but generally they are around 1,000 metres.

The western chain extends south from the Greater Khingan range in northeast China through north China's Taihang Mountains and the mountains of the Yangtze Gorges to

tains are many passes and basins which are both low and level. Many of these have become vital passages for north-south communication. Over 2,000 years ago during the Chin

the Hsuehfeng Mountains in Hunan. This series of ranges forms the eastern rim of the Inner Mongolia, the Loess and the Yunnan-Kweichow plateaus.

The northeast-southwest ranges stand squarely in the path of the south-eastern monsoon, weakening its inland penetration. Thus they, especially the western chain, are the basic dividing line between the moist east and the arid west. The Greater Khingan range is the most typical in this respect.

The Greater Khingan

Mountains: Located in the western part of northeast China, they run from northeast to southwest and divide the Inner Mongolia Plateau and the Liaosung Plain. These mountains extend 800 kilometres from north to south and 200-300 kilometres from east to west. The eastern slopes are much steeper than the western, which are relatively gradual. Most of the mountain tops are rounded. Though only 1,000 metres or more in height, they prevent the southeastern monsoon from penetrating inland and also weaken the northwest cold wind. As a result, the climate is moist in the eastern part and arid in the western part. The Greater Khingan Mountains are among China's important forest areas, growing larch, white birch and other fine trees.



Changpai Mountains waterfall.

North-South Ranges These ranges are mainly distributed in the western parts of Szechuan and Yunnan in southwest China, and in eastern Taiwan Province.

The Hengtuan Mountains: A series of parallel north-south ranges run from the southward turn of the Yalutsangpo River to western Szechuan and western Yunnan. Among these are the Tahsueh, Nushan and Kaolikung mountains. High and with deep valleys, they are a block to east-west travel, hence their name — Hengtuan — which means “cut across” in Chinese. They are between 4,500 and 5,000 metres in the northern stretch and gradually decrease in height towards the south, dropping to less than 3,000 metres as they thrust into Yunnan.

Though the Hengtuan Mountains are not far from the sea, because they rise abruptly, the rain-bearing southeastern monsoon from the Pacific and southwestern monsoon from the Indian Ocean do not penetrate their interior. The mountain valleys therefore are generally arid.

The mountains in eastern Taiwan Province also run roughly from north to south, and include the highest peak in southeast China — the 3,950-metre Yushan Mountain.

Plateaus

VARYING in physical features, China's plateaus extend over wide areas. The four major ones are the Chinghai-Tibet Plateau, the Yunnan-Kweichow Plateau, the Inner Mongolia Plateau and the Loess Plateau. They account for about one-fourth of the country's territory.

The Chinghai-Tibet Plateau

The Chinghai-Tibet Plateau in southwest China embraces mainly the Tibet Autonomous Region, Chinghai Province and western Szechuan Province. With an area of 2.2 million square kilometres and an average altitude of over 4,500 metres, it is the world's largest and highest tableland. Around it loom massive mountain ranges — the Himalayas to the south, the Kunlun Mountains to the north, the Karakoram Mountains in the west and the Hengtuan Mountains in the east. With many snow-capped peaks and glaciers, the Chinghai-Tibet Plateau is known as “The Roof of the World.”

Lying in the interior of the Asian mainland, the Chinghai-Tibet Plateau is the watershed and source of many great rivers in east, south and central Asia — the Yangtze River,

Yellow River, Lantsang River (upper Mekong), Nukiang River (upper Salween), Yalutsangpo (upper Brahmaputra), the Ganges, Indus and Tarim rivers. Flowing radially from the magnificent mountain ranges surrounding the plateau, they are rich sources of hydraulic power. This highland is studded with lakes, especially the Northern Tibet Plateau which is a region of China with numerous lakes. Many are salty, providing favourable conditions for the development of the chemical and aquatic products industries. The 4,400-square-kilometre Chinghai Lake is China's largest salt lake, while Namu Lake (Nam Tso) in the Tibet Autonomous Region, with an area of 2,400 square kilometres and at 4,600 metres above sea level, is the highest big lake in the world. With many rich lakeside pastures, the Chinghai-Tibet Plateau is one of China's important stock-raising areas.

Climate differs greatly in the north and south of the plateau. Owing to the monsoon, the climate in the valleys of southeastern Tibet is warm and humid. Average annual temperature is about 10° C. and, in many places, annual precipitation reaches more than 1,000 mm. The region is a principal farming area, producing *chingko* barley, wheat and rapeseed. The Chayu region east of the Himalaya Mountains, because of its sub-tropical climate, yields abundant crops of rice, citrus, bananas and sugar cane. Central and Northern Tibet plateaus are frigid and dry, covered by ice and snow half of the year, with an annual precipitation of less than 200 mm.

Weather in the plateau is highly variable, with a difference of 20 degrees in temperature between day and night. This, together with intense sunshine, favours crop growth to a certain extent. In recent years, the people of the various nationalities in Tibet, overcoming difficulties caused by the treacherous weather, have carried out scientific farming ex-

periments. Many crops from the hinterland have been acclimatized to the highland valleys, bringing fair increases in grain output. Cucumbers, tomatoes and other vegetables are

now widely grown as field crops. For the first time in its history, the plateau also produces tobacco, tea and sugar.

Before liberation, the Tibet Plateau had no roads linking it with the hinterland, and the yak was the chief means of transport. Today, three principal highways — the Szechuan-Tibet, the Chinghai-Tibet and the Sinkiang-Tibet — and many other roads connect Tibet with the rest of the country.



The city of Lhasa on the Tibet Plateau.

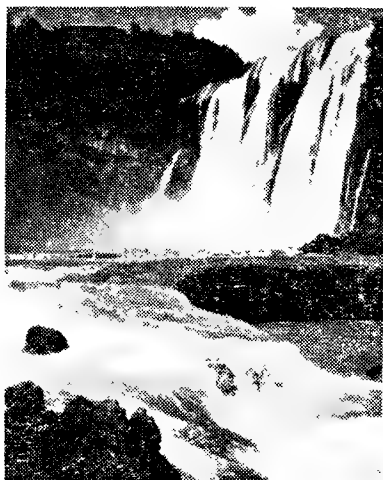
The Yunnan-Kweichow Plateau

The Yunnan-Kweichow Plateau in southwestern China covers mainly eastern Yunnan Province and the major part of Kweichow Province. Its elevation gradually decreases from about 2,000 metres above sea level in the west to about 500 metres at the eastern edge. The climate is humid, with abundant rainfall.

As a result of erosion by water, the plateau's surface is rugged and, with many mountains, varies greatly in height, especially in eastern Kweichow. Numerous small basins lie scattered among the undulating mountains. Having deep soil strata and convenient irrigation facilities, these intermontane level lands are important grain-producing areas.

Centuries of erosion by water of the limestone over large areas of the plateau have produced grotesque forests of pinnacles, marvellous pits and caverns, and twisting subterranean channels. The "stone forest" in Lunan, with the most varied shapes of pillar-like peaks, is famous for its scenery.

In the limestone areas, rain water seeps through the soil quickly and the crops are often threatened by drought. The peasants have devised a series of methods to utilize underground water for irrigation, such as by digging ponds to accumulate spring water, damming up subterranean channels and building underground reservoirs in the caverns.



Huangkuoshu Waterfall on the Yunnan-Kweichow Plateau.

very mild climate and is known as the "city of spring." It presents a scene of year-round luxuriant green, with flowers of many colours in bloom.

The Yunnan-Kweichow Plateau is dotted with lakes. Its rich water resources provide excellent conditions for irrigation, power generation, navigation and aquatic products culture. The famous Tien-chih and Erhhai lakes are formed as a result of violent fault depression in the earth's crust. The lakes and the surrounding hills combine to produce fascinating views.

By the side of the Tien-chih Lake, Kunming has a

The plateau is inhabited by many nationalities, including the Han, Yi, Tai, Pai, Kawa, Puyi, Miao, Chuang and Yao. Guided by the revolutionary line of Chairman Mao and, specifically, by his policy concerning nationalities, the people of all nationalities are united as one and have made important contributions to the socialist revolution and socialist construction of their motherland.

The Inner Mongolia Plateau

The Inner Mongolia Plateau in northern China sprawls west of the Greater Khingan Mountains, north of the Great Wall and northeast of the Chilian Mountains. It embraces the Inner Mongolia Autonomous Region, northwestern Kansu, northern Ningsia, and the western parts of Liaoning, Kirin and Heilungkiang provinces. With an average elevation of about 1,000 metres above sea level, the terrain is flat and broad with no high mountains or deep valleys. It is a typical rolling tableland, on which are found wide but shallow basins surrounded by low hills. On the floor of the basins lie sand or stone deserts, lakes and swamps.

Owing to its height, high latitude and distance from the sea, the plateau has a continental climate with cold and long winters, cool and short summers, plentiful sunshine, radical temperature changes, frequent sandstorms and little rainfall. Rivers on the plateau are few and far between, and most of them are inland waterways. In many places, however, rich resources of good underground water can be found, favouring the development of agricultural production and animal husbandry.

The Inner Mongolia Plateau has rich, vast grasslands, the various pastures in the eastern part being particularly fertile and known for their fine breeds of Sanho cattle and Sanho

horses. The western part of the plateau, where grasses are comparatively sparse and short, is suitable for raising sheep and camels. All this places the Inner Mongolia Plateau among China's five areas important for animal husbandry.

Before liberation, the masses of poor herdsmen led a miserable life, cruelly oppressed and exploited by the feudal princes and nobility as well as the Kuomintang reactionaries. For want of water and frequently suffering from insect pests and voles, the grasslands were gradually laid waste and the number of livestock sharply decreased.

Since liberation, under the leadership of the Communist Party and people's government, animal husbandry has developed considerably on Inner Mongolia's grasslands. Relying on the collective effort of the people's communes, the herdsmen have devoted tremendous energy to building water conservancy projects, eliminating voles and popularizing various kinds of machines, and have brought new life to the grasslands. They have abandoned the old practice of wandering from place to place to graze their flocks and now live in settlements, while sending their men to drive herds to fresh pastures for grazing. The plateau is prospering, with the formerly decreasing population now on the increase, and the number of livestock multiplying.

The Loess Plateau

Roughly speaking, the Loess Plateau is bounded by the Great Wall on the north, the Chinling Mountains on the south, the Taihang Mountains on the east and the Chilian and Hsiching mountains on the west. It includes Shansi Province, and parts of Kansu and Shensi provinces and of the Ningsia Hui Autonomous Region. Averaging 1,000 metres or more in elevation and covering 400,000 square kilometres, it is the world's largest loess plateau. Across it flow the Yellow River

and its tributaries — the Taoho, Weiho, Loho and Fenho rivers.

The plateau is largely covered by a layer of loess varying generally from 50 to 80 metres and exceeding more than 100 metres in some places. This yellowish soil is a loose, loamy deposit blown in over the centuries by wind all the way from the highland deserts of Inner Mongolia. Sparse vegetation and concentrated rainfall in summer have caused serious loss of water and soil, forming numerous gullies. With a complex terrain, the plateau is typical of loess land formation.

Loess land forms are either the highland plain or hilly region type. The plain is relatively intact, with a level centre and gullies on the margins. Examples of this type are the well-known Tungchihyuan in eastern Kansu and Lochuan-yuan in northern Shensi, both covering extensive areas. Well suited to cultivation, the loess plains are important farming areas.

The loess hilly regions, disfigured by flowing water, consequently are of varied heights. Distributed widely, large tracts of such land can be found in western Shansi and northern Shensi.

Throughout the centuries, a succession of reactionary regimes led to the destruction of the plateau's vegetation, which in turn aggravated the loss of water and soil. The Yellow River became choked, bringing disaster to the people along the middle and lower reaches. After liberation, Chairman Mao issued the call, "**Work on the Yellow River must be done well**" and "**Attention must be paid to soil conservation.**" The Party and government took a series of comprehensive measures to conserve water and soil, such as mobilizing the masses to plant trees and grass and to terrace the hillside fields. This has brought remarkable results. The loess table-



Terraced fields on the Loess Plateau.

trees and terraced with fields. Impelled by the nationwide mass movement, **"In agriculture, learn from Tachai,"** the local commune members, led by the Party, are following Tachai's example and steadily changing the appearance of the Loess Plateau.

land of the nationally famous Tachai Production Brigade in Shansi was once so carved up by nature that a downpour would turn its land into rivers. Today, its hills are crowned with

Plains

A GLANCE at the topographical map of China shows that most of the western section is coloured yellowish brown while most of the eastern section is in light green. To the west of the Greater Khingan Mountains in northeast China, of the Taihang Mountains in north China and of the Wushan Mountains in central China are highlands, mountain ranges and great basins. To the east of these, except for the hills south of the Yangtze River, are China's three major plains: the Northeast Plain, the North China Plain and the Middle-Lower Yangtze Plain, each with an area of some 300,000 square kilometres. Having a total area of about a million square kilometres, or roughly a tenth of its territory, China's plains constitute its principal farming area, its most densely populated part and the region where cities are most numerous.

The Northeast Plain

This, the country's largest plain, lies between the Greater and Lesser Khingan and the Changpai mountains. Measuring 1,000 kilometres from north to south and 400 kilometres from east to west at the widest part, it is mainly the product of alluvial deposits of the Sunghua, Nunkiang and Liaoho rivers in northeast China. Included in this area is the Sankiang

Plain at the northeastern corner of the country, where the Sunghua, Wusuli and Heilung rivers converge.

The Northeast Plain is generally not more than 200 metres above sea level. The terrain is gently rolling, and in most places is covered by a thick layer of black soil. It makes up one of China's main farming areas, and is a famous soyabean producer. Other chief crops it grows include sorghum, wheat, sugar beets and flax.

Before liberation, most of the northern and northeastern parts of the plain were uninhabited grasslands known as the "great northern wilderness." A folk saying describes it like this:

One shot,
A roebuck you've got.
One line, there's a fish.
And, if you wish, pheasants
Fairly fall
Into your pot.



A rich wheat harvest in the former "great northern wilderness" on the Northeast Plain.

ties of grain and meat.

Suffering from waterlogging nine years out of ten, the southern part of this plain, the Panchin region around the mouth of the Liaoho River, was known as the "great southern wilderness." Land reclamation, especially construction done during the last few years, however, has turned it into a large irrigated area.

With convenient transport, the Northeast Plain has now become an advanced industrial region. Among its main cities are Shenyang, Harbin and Changchun.

The North China Plain The land here in the lower reaches of the Yellow River was created by silt from the Yellow, Huai and Haiho rivers. Mostly less than 50 metres above sea level, the North China Plain is bordered on the north by the Yenshan Mountains and on the west by the Taihang Mountains and the highlands of western Honan Province. On the east it extends to the Pohai and Yellow seas, and on the south into northern Kiangsu and Anhwei provinces where it meets the Middle-Lower Yangtze Plain.

The Yellow River divides the North China Plain into the Haiho Plain in the north and the Huanghuai Plain in the south. The enormous quantities of silt deposited by the Yellow River as it slows down in crossing the flat plain have caused the riverbed to gradually rise above the surrounding land, forming a "hanging river." Under the reactionary rule in the past, this area suffered from catastrophic floods as the river would burst its dykes two years out of three. The Haiho and Huai rivers and their tributaries also produced serious floods, because during the high-water season the water rushes down faster than it can be discharged along the lower reaches.

After liberation, the Chinese Communist Party and the people's government led great armies of river tamers to permanently control the Huai, Yellow and Haiho rivers. Under overall planning, a series of multi-purpose measures have been taken with an eye to combining storage and discharge, and irrigation and drainage. The many projects of varying size have relieved this region of periodic floods and spring droughts, contributing greatly to the agricultural production of the North China Plain.

Since ancient times, the Chinese nation has lived and worked in the Yellow River valley, cradle of Chinese civilization. The alluvium that covers the area is very fertile.



Cultivated fields in Chengting County,
North China Plain.

With an average annual precipitation of 600 mm. and hot, wet summers favourable to crop growth, the North China Plain is an important agricultural area, its main crops being wheat, cotton, sesame seed, peanuts and tobacco. The coast of the Pohai and Yellow seas is flat and suitable for drying sea salt in the sun. Located here are the famous Changlu and northern Kiangsu salt fields, the former ranking as one of the country's important producers of alkali.

The national capital, Peking, is on the northern edge of the North China Plain. Tientsin, near the Pohai Sea, is known for its advanced industry and rates as the biggest trade centre in north China.

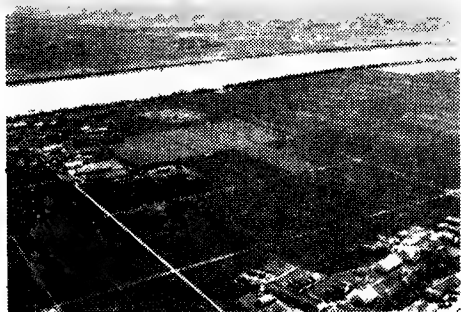
The Grand Canal crosses the eastern part of the plain. Starting from Peking in the north, the 1,782-kilometre-long canal turns south at Tientsin to cut through the North China Plain and the Middle-Lower Yangtze Plain.

The Middle-Lower Yangtze Plain

After passing through the beautiful Wushan Mountains between Szechuan and Hupeh provinces, the Yangtze River enters what is called the Middle-Lower Yangtze Plain. This may be subdivided into the Middle Yangtze Plain and the Lower Yangtze Plain. The first includes the plains of northern Hunan and central Hupeh, and around the Poyang Lake. Most of this land is less than 100 metres above sea level and, around the lakes and rivers, less than 50 metres. The plains along the Yangtze in Anhwei and the Yangtze Delta between Kiangsu and Chekiang are collectively known as the Lower Yangtze Plain. Here the land is barely 10 metres above sea level.

Within the Middle-Lower Yangtze Plain, both in the north and south, are hilly and mountainous regions from 200 to 500 metres above sea. Among the mountains noted for scenic beauty are Mts. Lushan, Huangshan, Tienmu and Tapich.

The picturesque Yangtze plain is crisscrossed by rivers and studded with lakes. The Tungting, Poyang, Taihu and Chaohu, all famous big fresh-water lakes in China, are located here. They are a rich source of fish, water chestnuts, lotus seed and root, and reeds. The Yangtze Delta is known as the "water country" for its numerous lakes, rivers, streams and estuaries, which facilitate water transport. There are many large and small waterways connecting with the vast Taihu Lake as well as with the turbulent Yangtze. Usually referred to as the "land of fish and rice," this river-lake-



Country scene in Sungchiang County
on the Yangtze Delta.

estuary region abounds in rice paddies, mulberry orchards and fish ponds. Thanks to ample rainfall and its low and flat terrain, the Middle-Lower Yangtze Plain is one of China's most important farming areas for rice, cotton, wheat, rape-

seed, ramie and cocoons.

In the old days, from May to September, the period of heaviest rainfall in the Yangtze valley, there would be floods on the plains of northern Hunan and central Hupeh. After liberation, the Party and government led the people to build several thousand kilometres of dykes along the Yangtze and construct a large number of waterlocks, culverts, reservoirs and power stations along its tributaries. The biggest such project is the Chingkiang flood diversion project completed in 1953. It has freed from waterlogging 13 million *mu* of farmland on the plains of northern Hunan and central Hupeh, guaranteeing the rapid development of agricultural production there.

The Middle-Lower Yangtze Plain is one of China's most densely populated parts. Here are located such big cities as Shanghai, Nanking, Hangchow and Wuhan. After liberation, in line with the principle of **"maintaining independence and keeping the initiative in our own hands and relying on our own efforts,"** light and heavy industries have rapidly devel-

oped and local industries in the medium and small cities have flourished. In this area we find the Yangtze River bridges at Wuhan and Nanking, two of the three built in recent years spanning the former "natural barrier" which had obstructed through traffic between north and south China.

Basins

BASINS, along with mountains, plateaus, hills and plains, contribute to the varied topographical features of China. The bigger and deeper basins are in the west, the east having only medium-sized and small ones. The five discussed here are the most famous.

The Tarim Basin The Tianshan Mountains in western China span the Sinkiang Uighur Autonomous Region, dividing it into the Tarim Basin in the south and the Dzungaria Basin in the north. Five hundred million years ago, during the Early Palaeozoic era, Tarim and Dzungaria were the only land masses in Sinkiang; the rest of the area was covered with water. Then during the Late Palaeozoic era, about 200 to 300 million years ago, as a result of violent movements of the earth strata in China's west, the bottom of the ocean became exposed and was thrust up, forming mountains. The ocean disappeared, and Tarim and Dzungaria, instead of being islands, became depressions surrounded by mountains.

The Tarim Basin, of irregular diamond shape, is bounded by the Tianshan and Kunlun mountains and the Pamirs. Measuring 1,500 kilometres from east to west and 600 kilometres from north to south at the widest part, it is China's

biggest inland basin (and also the biggest in the world). Its floor covers an area of 530,000 square kilometres. The average elevation is 1,000 metres above sea level.

The basin's surface structure is a series of concentric belts. First there are the outer mountains, then the gobi area (foothills of stones), then a ring of oases and, at the centre, desert and salt lakes. The landscape changes from belt to belt. The outermost belt is dotted with the snow-capped peaks of the Tianshan and Kunlun mountains. Deep in the luxuriant forests of the Tianshan are many natural grazing grounds. The mountains possess rich deposits of coal, oil and metallic ores. They are important sources of tungsten, copper, lead, gold and silver.

The gobi area is an expanse of stones burnt black from millions of years of exposure to the scorching sun. Vegetation here is extremely sparse.

The oases beyond are another world, with vast tracts of cropland and networks of irrigation canals. Along with wheat, corn and rice, this fertile belt is one of China's main producers of fine long-staple cotton. Sericulture has a long history here. Silk production has developed considerably since liberation. The oases also yield an abundance of apricots, pears and apples.

Leaving the oases, one enters the Taklamakan which, with an area of more than 300,000 square kilometres, is the largest desert in China and one



Oasis in the Taklamakan Desert of the Tarim Basin.

of the largest in the world. (Taklamakan is a Uighur word meaning, "Go in and you won't come out.") The centre of the desert is a place of dead silence with no sign of plant or animal life, even of bird or insect life.

On the eastern edge of the Tarim Basin is the Lop Nor, the biggest shifting lake in China. Its water contains highly saline compounds and around it are salt crusts.

Situated in the heart of the Asian continent, the Tarim Basin is 2,000 to 3,000 kilometres from the sea on all sides. Very few places in the world share such a distinction. With ocean moisture blocked off by the surrounding mountains, the climate is arid. On the fringe, annual rainfall measures from 50 to 100 mm., in the centre about 10 mm. Some places have no rain the year round.

There is a wide difference between night and day temperatures and those of summer and winter. The summer-winter difference in the same spot may be as much as 50° to 60° C., and for day-night 15° to 20° C. In late spring and early summer, and late autumn and early winter, while the mornings and evenings are cold enough for thick clothing, noon-time is so hot that the lightest summer garment seems too heavy. A local saying goes, "Fur coats in the morning, gossamer at noon; a place where you enjoy watermelon by the fireside."

Tarim in Uighur means "converging rivers." All the rivers here originate in the mountains and flow inward through the valleys, the gobi and the desert, and either gradually seep away into the ground or empty into lakes. The 2,100-kilometre Tarim River is the longest inland river in China and one of the longest in the world. The local people of this arid region long ago invented the *karez* underground channel system for irrigation.

Much has been done here since liberation to transform nature: planting trees and forest belts in the deserts, removing sand to create fields and building water conservation projects. In Pishan County, located between the Taklamakan Desert to the north and the gobi to the south, the people in eight years have built 229 kilometres of canals in order to utilize the melting snows of the Kunlun Mountains to irrigate the sandy land. They have also planted 23,000 *mu* to trees and 1,000 kilometres of shelter belts. Protected by these, farmland which had been submerged by sand has been recovered and new tracts have been reclaimed from the desert.

New highways now link the cities and the countryside. Many of these cross the Tianshan Mountains, go through the gobi and follow the northern foothills of the Kunlun Mountains into Tibet.

The Dzungaria Basin The Dzungaria Basin with the Altai Mountains to its north and the Tianshan

Mountains to its south is in the shape of an irregular triangle. In topographical structure it is similar to the Tarim Basin. Except for a few lakes and low-lying areas in the west, the floor of the basin is made up of the Kurban-Tungut Desert.

While sheltered by 2,000-metre-high mountains on the west, the Dzungaria Basin is exposed to air masses from the northwest through several passes. This gives the region more rain than the Tarim, an annual precipitation ranging from 150 to 300 mm. Temperatures here are generally lower than in the Tarim Basin. Winter brings a strong northwesterly

wind, which gives the Dzungaria Basin its characteristic cold climate.

There are few rivers. The Irtysh, flowing along the foothills of the Altai into the Soviet Union, is China's only river emptying into the Arctic Ocean.

The Dzungaria Basin has large deposits of oil, coal and metallic ores. The Karamai in the west is one of China's bigger oilfields. The section of the Altai Mountains within the Chinese border has been an important producer of gold since ancient times. Mining of many other metallic ores has been carried on since liberation.

Urumchi on the southern fringe of the basin is the capital of the Sinkiang Uighur Autonomous Region and a developing industrial city in northwest China. In recent years many big state farms have arisen in the valley of the Manass River. Their huge tracts of newly reclaimed farmland yield rich crops of wheat and cotton. Local specialties include grapes, Hami melons and apples.

Before liberation, the Dzungaria Basin had not an inch of railway. Now Urumchi can be reached by rail from Peking, and highways link the cities with the mining and agricultural areas.

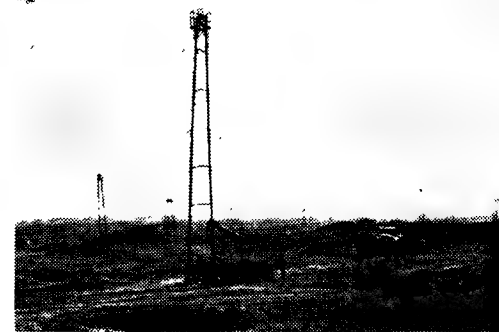
The Tsaidam Basin

The Tsaidam Basin situated in the northwest of Chinghai Province is enclosed by the Chilian Mountains on the north and northeast, the Kunlun Mountains on the south and the Altyn Mountains on the northwest. The basin measures 850 kilometres from east to west and 250 kilometres from north to south at its widest part. Tsaidam is a depression in a high

plateau, the elevation of its floor varying from 2,500-3,000 metres above sea level. In the northwest are plains, hilly regions and deserts, and in the southeast, level land.

Tsaidam is a Mongolian word meaning "salt marsh." Two to three hundred million years ago the basin was a huge lake. Then the western part gradually rose and the surface area of the lake shrank, leaving some 5,000 salt lakes. With an area of 1,600 square kilometres, Charhan Salt Lake in the centre of the basin is China's biggest surface rock-salt bed. Its 25,000 million tons of salt deposits are enough to supply China's entire population for 8,000 years. Vast portions of its surface are solid salt up to 15 metres thick. The north-south highway traversing the basin runs for 31 kilometres over this salt surface. Many houses in the basin are built of huge salt slabs. Lumps of rock salt can be found in unusual shapes — "snowflakes," "pearls" or "noodles" — in aquamarine, white, red, blue and black. Intricate art works are carved from the transparent crystals.

Ample deposits of coal, oil, asbestos and various kinds of metallic ores give Tsaidam the name "treasure basin." The growth of a dozen or more industries, including iron and steel, coal, nonferrous metals and oil, is making Tsaidam a rising industrial region in China's northwest.



Oil derricks in the Tsaidam Basin.

The Turfan Depression

The Turfan Depression of Sinkiang, in the eastern part of the Tianshan Mountains, is surrounded on all sides by the branch ranges of the Tianshan with heights of 1,500 to 5,400 metres above the sea. Aidin Lake in the basin, 154 metres below sea level at the surface, is the lowest spot in China. The 50,000-square-kilometre basin is the result of a violent fault depression in the earth's crust which occurred between 60 and 180 million years ago. With the basin locked in by mountains, the heat builds up quickly but dissipates slowly, producing a summer mean temperature above 30° C. In 1953 the thermometer registered a record high of 47.6° C. Although thunder and lightning often make it seem that a storm is threatening, no rain falls because moisture evaporates before it reaches the ground. With an annual precipitation of only 25 mm., the arid Turfan Depression is the hottest place in the country and is called "oasis of fire." To escape the intolerable summer heat, the local people often repair to cellars. On the northern rim of the depression is Bogdo Mountain whose southern slope of red sandstone bare of vegetation looks in the sunlight as if it were on fire, hence its name "Flaming Mountain."

Rivers in the Turfan Depression are small and short. Most of their waters seep into the ground so that underground water is plentiful and can be made to irrigate the land through *karez* channels. The place yields wheat and cotton and is nationally known for its melons and fruit, especially its seedless grapes.

Since 1964 the local people have made use of the slack seasons to dig 50 kilometres of canals through which the melting snows of the Tianshan Mountains are brought to the oases. Shelter belts have made it possible to recover cropland once buried by shifting sand, and agriculture is developing rapidly.

The Szechuan Basin

The Szechuan Basin in Szechuan Province along the upper reaches of the Yangtze River is encircled by the Chinghai-Tibet Plateau on the west, the Yunnan-Kweichow Plateau on the south, the Wushan Mountains on the east and the Tapa Mountains on the north. The average elevation of the basin does not exceed 700 metres above sea level. Within it are low mountains, hills and plains, the biggest of which is the Chengtu Plain in the west.

About 135 million years ago the Szechuan Basin was a lake. Later the surrounding land gradually rose to become mountains. Then, through an opening on the basin's eastern edge, which was to become the famous Yangtze Gorges, the water flowed out and the lake became land. Today, wells sunk into the basin floor will yield salt water formed by saline compounds from an ancient lake that seeped underground.

The natural landscape of the Szechuan Basin is different from the basins already mentioned. With high mountains on the north fending off the cold air masses, the basin has hot summers and mild winters. It is green the year round, with abundant rainfall and much fog in winter and spring.



Rape in bloom in the Szechuan Basin.

Its numerous rivers all flow into the Yangtze. The famous Tukiang Dam irrigation system on the Chengtu Plain was built by the labouring people more than 2,000 years ago. Improved since liberation, the system now waters seven million *mu* of

land in contrast to the two million *mu* before liberation. The basin's red sandstone and shale contain large deposits of phosphorus and potassium.

One of China's important "rice bowls," the Szechuan Basin also yields a wealth of sub-tropical products including tung oil, sugar cane, the red tangerine, the sweet orange and various medicinal herbs, all of which have earned it the name "Land of Abundance."

The basin also possesses coal, oil, natural gas, salt wells, apatites and sulphur, but before liberation there was not much industry, and communications were poor. Since liberation, iron and steel, machine-building, chemical and building-material and many light industries have rapidly developed. The Paochi-Chengtu, Chengtu-Kweiyang and Chengtu-Kunming railways have been completed. Networks of highways have been built and water transport facilitated. Big steamboats can now negotiate the Yangtze Gorges to reach Wuhan and Shanghai. All this has made the Szechuan Basin an important industrial base for China's southwest.

Climate

SITUATED in the southeastern part of Eurasia, the world's biggest continent, with the world's biggest ocean, the Pacific, to its east, China has a climate dominated by the monsoonal winds rising out of the differences in the heat-absorbing capacity of the continent and the ocean. A complex terrain and a vast territory give it a great many types of climate, a factor favouring agriculture.

Special Features of the Monsoons

The continent, while receiving the same amount of heat from the sun as the ocean, warms up and cools off faster than the ocean. In winter the air over the continent is colder than that over the ocean. It contracts to become dense and heavy, and builds up such great pressure that it has to escape to regions with a low atmospheric pressure. In winter, air masses from the Mongolian People's Republic and Siberia in the Soviet Union move southward over China towards the ocean, so the greater part of China has northeast and northwest winds.

In summer the air over the continent is warmer and, through expansion, becomes thinner than that over the ocean. The high-pressure air masses formed over the ocean move

towards the continent. The air masses flow from the high-pressure regions over the Pacific Ocean in the southeast and over the Indian Ocean in the southwest. The greater part of China, therefore, has southeast and southwest winds.

The winter monsoon is formed in the Asian hinterlands in the middle and high latitude where heat radiation from the winter sun is weak and much heat is lost in the long night, rendering the air very cold. When sufficient cold air accumulates it explodes southward in a howling north wind that causes a sharp drop in temperature resulting in a cold wave. There are generally five or six strong cold waves every winter. The greater part of the country is therefore cold and dry in winter, making China a comparatively cold country among those of its latitude.

The summer monsoon includes both the southeast and southwest monsoons. The southeast monsoon arising over the Pacific Ocean influences mainly the eastern half of China. The southwest monsoon arising above the Bay of Bengal and the Indian Ocean influences mainly China's southern and southwestern regions. As it passes across the vast ocean surface, the summer monsoon picks up moisture which it releases over the Chinese mainland in the form of abundant rainfall. This is why the annual rainfall over the greater part of China is highly concentrated within a few summer months. Southeast China has comparatively heavy rainfall for a region of its latitude.

The advance and retreat of the monsoons has much to do with whether the rainy season arrives early or late, and whether the crops suffer from drought or flooding. When the monsoons are abnormal these occur over relatively large areas. For example, in the summer of 1959, a moist southeast monsoon of extraordinary strength moved the heavy rain belt northward faster than usual. As a result, there was

a two-month drought in the Yangtze valley, which in ordinary years enjoyed plenty of rainfall in early summer, and in parts of north China too much rain caused waterlogging. It was just the opposite in the summer of 1954 when cold air from the north blocked the southeast monsoon and the heavy rain belt hovered over the basins of the Yangtze and Huai rivers till the end of July. This caused the biggest flood in a century in the middle and lower Yangtze valley.

Climatic Patterns

The northernmost point of China is at about latitude 53° N., the central line of the main navigation channel of the Heilung River where it flows north of Moho. The climate there is that of the cold-temperate zone. China's southernmost land is the Tsengmu Reef at about latitude 4° N., with an equatorial climate. This tremendous difference in latitude gives China a wide variation in temperatures.

In winter the north is bound in ice and snow. January mean temperatures are below zero Centigrade, while the northernmost part of Heilungkiang Province has an average daily temperature as low as -30° C. The south has extraordinarily warm winters. Mainly because of their relatively low latitude, plus the fact that the mountain ranges running in an east-west direction obstruct to a certain extent the cold air from the north, the central and southern parts of Kwangtung and Kwangsi and southeastern Fukien have an average winter temperature above 10°C. Luxuriant vegetation thrives all the year round in both the plain areas and the mountains. Palm trees grow on Hainan Island and in the coastal areas of Kwangtung and Kwangsi provinces where the average temperature stays as high as 15° C. or more.

In summer the north-south difference in temperature is smaller. Thanks to the southerly winds and longer hours of

sunshine in the north, the temperature for the country as a whole is relatively high. For instance, in the south the July mean temperature is about 28° C., while in a large part of Heilungkiang Province in the north it also goes above 20° C. This permits warm-climate crops such as rice and cotton to be grown throughout the greater part of the country.

As China stretches across 5,000 kilometres from east to west, the moisture-laden summer monsoon from the Pacific Ocean cannot penetrate deep into the northwest hinterland; nor, because of the Himalayas and the Tibet Plateau standing in its way, can the wet summer monsoon from the Indian Ocean. As a result, the annual rainfall in northwest China is the lowest in the country, while in the deserts there is no rain the year round. Farmland there is irrigated mainly by melting snow from the high mountains and by underground water. Since liberation, snow melting has been increased by dusting snow-covered mountains with a black powder. The increased volume of water enables larger areas to be irrigated.

The annual rainfall increases gradually as one moves on the map from the northwest towards the east, the south and the southeast. The northeast has an annual precipitation of from 400 to 1,000 mm. In the Yellow River valley it ranges from 600 to 800 mm. Rainfall south of the Yangtze and on the Yunnan-Kweichow Plateau is about 1,000 mm. In many places along the southeastern coast, in Taiwan and on Hainan Island it exceeds 2,000 mm. With 6,600 mm., Huoshao Island of Taiwan Province has the heaviest annual average rainfall in China.

Both altitude and terrain strongly influence the climate. Generally, with the rise of every 1,000 metres in altitude, the temperature drops by 5° to 6° C. The greater part of the Chinghai-Tibet Plateau stands at 4,000 to 5,000 metres above sea level. In many areas there the temperature even in July,

the height of summer, does not reach 10° C. Winter makes the plateau a world of gleaming snow. The 1,000 to 2,000-metre-high Yunnan-Kweichow Plateau further south has a mild winter and a cool summer. The central and southern regions of Yunnan Province are mostly spring-like the year round.

An area's climate is also affected by whether or not it is in a basin and by the side of a mountain range on which it is located. Because of the lower altitude, temperatures inside the basins are generally higher than those in the mountains around them. The Szechuan Basin, completely enclosed, is seldom invaded by cold waves and its winter is therefore milder than other regions of the same latitude. The Turfan Depression in Sinkiang has the hottest summer in China because it is a comparatively small enclosed basin located below sea level.

The difference in climate on the two sides of a mountain range is most marked in the amount of rainfall. Rainfall is heavier on the side facing the monsoon than the other side and even the level land. Examples are the southern slope of the Yenshan Mountains near Peking and the eastern slope of the Taihang Mountains on the border of Hopei and Shansi provinces. On both slopes which face the southeastern monsoon, the average monthly rainfall is from 200 to 300 mm. and sometimes goes as high as 500 mm. In winter the northeastern part of Taiwan Province and the northern slope of the Nanling range are windward slopes. This accounts for heavier rainfall there than in other places. Precipitation in the basins is generally smaller than that in the surrounding mountains. Because China has many kinds of terrain and is cut up by mountain ranges, it has an extremely varied pattern of temperature and precipitation.

Resources from Varied Climate

China's continental climate makes for hot summers over the greater part of the country, suitable for growing warmth-loving crops such as grain and cotton. The summer rains provide ample moisture when the crops are in their most vigorous period of growth.

When water is provided, the high temperature and abundant sunlight of China's dry northwestern regions become assets to plant growth. These factors contribute to the excellent yields and good quality of their grain and cotton crops. With high sugar content, their melons and fruit, such as melons from Hami and the seedless grapes from Turfan, are famous for their taste.

China's varied climate gives it a wealth of plant and animal life, including numerous herbs and valuable medicinal ingredients. Its climate enables it to grow not only cotton, soyabeans, peanuts, rapeseed, sugar beets and sugar cane, but also tropical industrial crops like rubber, coffee, cocoa, sisal, black pepper and oil palms, either for socialist construction or to satisfy a wide range of the people's needs.

If the people understand the laws of climate they can make best use of a favourable climate for production and overcome difficulties caused by an unfavourable one. China's central weather bureau and weather bureaux of the various provinces, municipalities and autonomous regions issue long-term forecasts as well as weather forecasts for the day and for 3-5 day periods. Basing themselves on these, county weather stations make even more specific forecasts to serve agriculture in their areas.

Rivers

CHINA has a large number of rivers. More than 1,500 of them have a drainage basin of over 1,000 square kilometres each. The majority of the rivers have outlets to the sea and so belong to the exterior river system, while others disappear in the inland, forming the inland river system.

The major rivers — the Yangtze, the Yellow, the Heilung, the Pearl and the Haiho — flow from west to east and empty into the Pacific. The Yalutsangpo and the Nukiang in southwest China flow south into the Indian Ocean. The Irtysh River, which flows through Sinkiang, eventually finds its way to the Arctic Ocean.

The Chinling Mountains and the Huai River divide China's exterior rivers into two types. Those north of this dividing line have a large flow in summer which dwindles to something quite small in winter. They freeze over in winter, some for a longer period than others, affecting navigation. Most of these rivers carry large amounts of silt, so that often the lower courses fill up, some to such an extent that the channels rise above the level of the surrounding land. They often shift their courses and cause flood.

Rivers south of the Chinling-Huai divide carry a heavy volume of water which does not vary much with the seasons.

They never freeze, and are navigable the year round. Because the areas they drain are rich in vegetation, these rivers carry little sediment.

The exterior rivers in the Hengtuang Mountains in southwest China, such as the Nukiang and the Lantsang, are of another type. They rise in the Chinghai-Tibet Plateau and rush down between towering mountains and narrow gorges. Because of this, though they have an enormous flow and are ice-free, they are not navigable. However, they offer an unlimited potential for water resources.

Inland rivers, which are located mainly in the arid northwest, drain one-third of the country's total area. Among them are the Tarim, the Tsaidam and the Shuleh. They are fed by glaciers and snow, and these determine the volume and length of their flow. They flow intermittently and frequently dry up.

In addition to natural rivers, the Chinese working people have dug many canals. The Grand Canal dug in ancient times stretches for more than 1,700 kilometres from Peking southward to Hangchow. Other outstanding examples are the network of canals in the Yangtze Delta; canals built after liberation, such as the Red Flag Canal in Linhsien County of Honan, and the canals providing additional outlets for the Haiho River.

Major Rivers

The Yangtze is China's largest river.

Rising in the Koko Shili Mountains in western Chinghai Province, it traverses 5,800 kilometres through Chinghai, Tibet, Yunnan, Szechuan, Hupch, Hunan, Kiangsi, Anhwei, Kiangsu and the Shanghai area to empty into the East China Sea. It drains a basin of 1.8 million square kilometres — about 19 per cent of the country's total



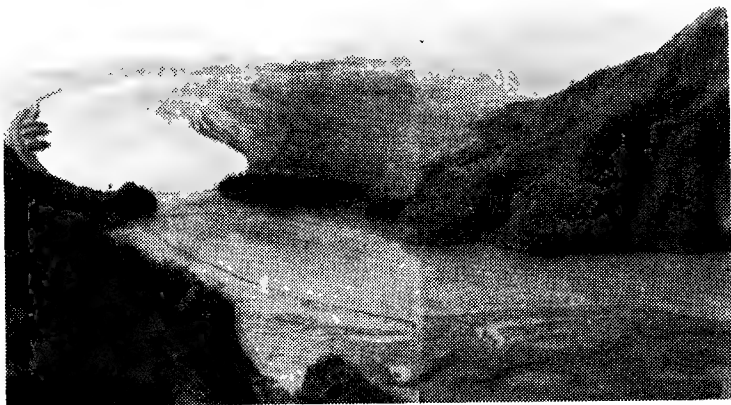
One of the three Yangtze gorges.



The Yangtze River Bridge at Nanking.

area — inhabited by 250 million people. As the greater part of its length is navigable, it is China's major transport artery.

The Yellow River is the second largest. Originating in the northern foothills of the Bayan Kara Mountains in Chinghai Province, it flows 4,800 kilometres through Chinghai,



The Yumenkou gorge on the Yellow River.

Szechuan, Kansu, Ningsia, Inner Mongolia, Shensi, Shansi, Honan and Shantung to empty into the Pohai Sea. The Yellow River valley, 740,000 square kilometres in area, is the birthplace of Chinese history and the cradle of Chinese culture.

The Heilung River: The middle section of the Heilung River forms part of the border between China and the Soviet Union. This river has two sources, the northern one being the Shilka River which originates at the eastern foothills of Kentai Mountain in the northern part of the People's Republic of Mongolia, and the southern one being the Erhkuna River which has three tributaries, one of which is the Hailar River originating on the western slope of the Greater Khingan Mountains in China's Heilungkiang Province. After the two tributaries merge at Loku Village west of Moho, the stream is called the Heilung River. Eventually flowing into the Sea of Okhotsk of the Soviet Union, it measures 2,850 kilometres in length from Loku Village to the outlet.

The Pearl River, south China's largest, is formed by the confluence of three rivers — the Sikiang, Peikiang and Tung-

kiang. The Sikiang, largest of the three, is the trunk of the Pearl; it rises in the Wumeng Mountains in east Yunnan and flows 2,100 kilometres through Kweichow, Kwangsi and Kwangtung into the South China Sea. Apart from the section in the Democratic Republic of Viet Nam, the Pearl River drains an area of 420,000 square kilometres in China. Located in humid sub-tropical regions with heavy rainfall, it carries an enormous flow which, through a dense network of waterways, facilitates transport.

The Haiho River originates in the mountainous areas of Hopei and Shansi provinces. Its upper course consists of five waterways — the North Canal, the Yungting, Taching and Tzeya rivers, and the South Canal. They converge near Tientsin to form the Haiho River, which then covers a 70-kilometre-long stretch before emptying into the Pohai Sea at Takukou. The Haiho system drains an area of 265,000 square kilometres, which includes the greater part of Hopei, parts of Shantung, Shansi, Honan and Inner Mongolia, and the Peking and Tientsin areas.

The Huai River, 1,000 kilometres long, originates in the Tungpo Mountains in Honan Province and flows eastward through Honan, Anhwei and Kiangsu into Hungtse Lake and eventually into the Yangtze. The drainage basin of the Huai, which also embraces the Yiho, Shuho and Szeho rivers, measures 260,000 square kilometres in all. Situated in the heart of China, it is the home of 100 million people and has 200 million *mu* of cultivated land and rich natural resources.

Controlling the Rivers

Old China was a disaster-stricken country which suffered a lot from floods. The reactionary ruling classes not only paid no attention to water control, but destroyed dykes. As a result the areas in the middle and lower reaches of almost all the

main rivers were flooded and waterlogged year after year. Since the founding of the new China, the people led by the Communist Party and the government have built more than 1,000 large and medium-size reservoirs and tens of thousands of small ones in the hilly and mountainous regions in the upper reaches of the bigger rivers; done extensive conservation work in places affected by serious loss of water and soil; built several hundred thousand kilometres of dykes in the middle and lower reaches of these rivers, and constructed about 100 drainage channels in the low-lying plains and coastal areas badly suffering from floods and waterlogging. The Chinese people's tremendous effort in controlling the rivers has achieved a great deal, especially in taming the Yangtze, Yellow, Haiho and Huai rivers.

The Yangtze, after rolling through the Three Gorges (the Chutang Gorge, the Wuhsia Gorge and the Hsiling Gorge) on the border of Szechuan and Hupeh provinces, enters the wide open plain known as the Chingkiang River Area in Hupeh. There the Yangtze follows a narrow winding course. Slowed down, the current tends to deposit its silt along this stretch, raise the riverbed above the surrounding land and cause flood.

After liberation, with leadership from the people's government, a vast army of peasants numbering in the hundreds of thousands raised and strengthened the 180 kilometres of dykes along the Chingkiang River to contain the waters higher than the surrounding countryside. These dykes have never once breached in more than 20 years. Moreover, the Chingkiang River flood diversion project was completed in a little more than a year following Chairman Mao's call in 1952, **"Strive for the successful completion of the Chingkiang River flood diversion project in the interests of the people!"** When the Yangtze rises in flood, it diverts the water safely

into the detention basin through 54 sluice-gates, protecting the areas in the middle and lower reaches from scourge.

The Yellow River used to be called "China's sorrow." The loess highlands through which its middle section flows have sparse vegetation, so that the soil is easily washed away. The silt carried into the Yellow River makes it the colour of mud. This silt is deposited in the riverbed as the current slows down while crossing the North China Plain. Before liberation the river repeatedly overflowed its banks and changed its course. The untold misery which this brought to the people living in the river's flood plain was augmented by the deliberate destruction done by the ruling classes through the ages. The most shocking example of this took place in 1938 at Huayuankou near Chengchow in Honan Province. After the Japanese imperialist army occupied Kai-feng, Chiang Kai-shek, chieftain of the Kuomintang reactionaries, fleeing before the aggressors, went to the length of trying to slow their advance by bombing the dykes, bringing disaster to 10 million people in the area.

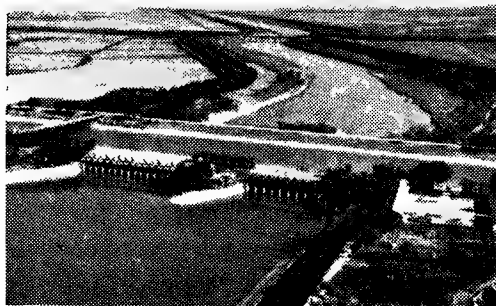
After liberation, Chairman Mao issued the directive, **"Work on the Yellow River must be done well."** In the past 20-some years the people have built several good-sized reservoirs on the upper and middle reaches which serve power generation, irrigation, flood control and silt retardation. In the loess highlands extensive conservation projects have been undertaken to halt soil erosion and water loss. The 1,800-kilometre dyke on the lower reaches has been strengthened, and many water control projects have been built, such as the People's Victory Canal on the north bank, near Chengchow in Honan Province, which diverts some of the water for irrigation. To turn the silt to good use, efforts have been made to let it collect to build new fields. Much has been done to improve alkaline soil in areas subject to waterlogging,

develop irrigation and create fields which give high and stable yields. While the flood problem is basically solved, work to cope with the silt goes on as part of the Chinese people's effort to bring the Yellow River under permanent control.

The Haiho River system is like a palm-leaf fan. The five big rivers in the upper reaches and their numerous tributaries are all short and swift-flowing. During heavy rains, their torrents rush into the Haiho, a river also with a short and narrow main body. Unable to take the increased flow, the river used to burst through onto the plain in great floods.

In 1963 Chairman Mao issued the call, "**The Haiho River must be brought under permanent control.**" Since then the people in the Haiho River basin have done a great deal of work on the Tzeya, Taching and Yungting rivers and the

North and South canals, as well as a number of other main waterways. They have built embankments totalling over 4,300 kilometres in length, dredged many tributaries and cut or dredged numerous drainage canals. All these



A water conservancy project on a Haiho River tributary in Hopei Province.

have increased the Haiho River's drainage capacity more than ten times as compared with pre-liberation days. Meanwhile, a large number of reservoirs have been built or enlarged so that the Haiho River basin now has 80-odd large and medium-

sized reservoirs and over 1,500 small ones. All this has helped radically to change the face of the river valley, formerly a victim of frequent natural disasters and a low-yielding area.

The Huai River was also notorious for flooding. Chairman Mao's call in 1951, "**The Huai River must be harnessed,**" opened a campaign in which the people, uniting as one and displaying the spirit of relying on themselves and working hard, built several thousand reservoirs of various sizes as



The New Yiho River, dug jointly by the people of Shantung and Kiangsu provinces, provides the Huai River with yet another outlet to the sea.

well as many storage projects. The course of the river has been reconstructed and several new outlets to the sea dug, including the New Yiho River, the New Shuho River and the North Kiangsu Main Irrigation Canal. These brought irrigation to large areas. During the Cultural Revolution the New Pienho River and the Red Guard River were dug. All this has changed the outlook of the once stricken Huai River valley, so that nowadays excellent harvests of grain and cotton are the rule rather than the exception in many local people's communes.

Lakes

THE vast Chinese landscape is dotted with lakes, not only in the warm, humid flatlands of the east, but also in the cold high regions of the west. Those of fair size number around 370, of which 130 have an area exceeding 100 square kilometres. There are also many man-made lakes — the reservoirs.

Location of Lakes Lakes are most numerous on the Middle-Lower Yangtze Plain and the Yunnan-Kweichow Plateau. There are also quite a few on the Chinghai-Tibet Plateau, in the Inner Mongolia-Sinkiang region and northeast China. China's lakes have special characteristics owing to the country's vast territory, complex topography and varied climate.

If a diagonal line were drawn across China from the southern section of the Greater Khingan Mountains through the Yinshan Mountains and the eastern section of the Chilian Mountains to the Kangkar Tesi Mountains, most of the salt lakes would fall northwest of it. Situated in the interior drainage basins, these lakes do not have much water and have no outlets, but they are rich in chemical raw materials such as salt and alkali. The lakes southeast of the diagonal line are mostly fresh-water ones with abundant water and,

being in the exterior drainage basins, have outlets through rivers. They are a boon to water transport, irrigation, manure collection and culture of marine products. Some are famous health resorts and tourist sites.

Major Fresh-Water Lakes

Best known among the fresh-water lakes are Tungting Lake, Hunghu Lake, Poyang Lake, Chaohu Lake, Taihu Lake and Yangcheng Lake on the Middle-Lower Yangtze Plain; Paiyang Lake, Weishan Lake and Hungtse Lake on the Yellow, Huai and Haiho river plains; Tienchih Lake and Erhhai Lake on the Yunnan-Kweichow Plateau. Most well known in northeast China are Chingpo Lake, Hulun Lake and Hsingkai Lake, which straddles the Sino-Soviet border. The term "five lakes" in the Chinese expression "five lakes and four seas" — meaning all corners of the land — refers to the Poyang, Tungting, Hungtse, Taihu and Chaohu lakes.

Poyang Lake is in northern Kiangsi Province, just south of the Yangtze. With an area of 4,000 square kilometres, it is China's biggest fresh-water lake. In the low-water season the lake resembles a river with many branches because of its irregularly-indented shorelines. It receives the flow of the Kankiang, Fukiang, Hsinking and Hsiushui rivers. Its waters enter the Yangtze through only one channel. During the flood season, Poyang Lake helps retard and store the waters of tributaries to the Yangtze and prevent flooding.

The climate in the Poyang Lake basin is warm and humid. On the fertile lakeside plains, rice, soyabeans, jute and wheat grow luxuriantly, making them Kiangsi Province's important farming areas. The lake is a rich source of aquatic products and is excellent for water transport.



On Tungting Lake.

Tungting Lake south of the Yangtze in northern Hunan Province is next in size to Poyang with an area of more than 3,000 square kilometres. In the Spring and Autumn Period (770-475 B.C.) this

whole area on the border between Hunan and Hupeh provinces was one big lake called the Yun Meng Tse, or Cloudy Dream Marsh. After the Warring States Period (475-221 B.C.) continuous silting filled in most of the ancient lake, leaving only the present-day Tungting Lake—named after the Chunshan Hill (also called Tungting Hill) on its northeast.

Of the three sections of the Tungting (the eastern, southern and western lakes), the eastern one is the largest. The waters of the Hsiangkiang, Tzeshui, Yuankiang and Lishui rivers flow into the lake from the south and west, while those of the Yangtze enter from the north and discharge through the town of Chenglingchi into the Yangtze again. The lake thus serves to regulate the waters of the five rivers. Unfortunately, continuous silting and wanton reclamation of scattered shoals by landlords and officials before liberation gradually cut the lake, reduced its area and dislocated the water courses. Then, whenever the Yangtze rose, and especially when it and the four other rivers rose simultaneously, the waters flooded over to cause great suffering to the people on the banks.

After liberation, the Chingkiang River flood diversion project was completed under Chairman Mao's call. Other anti-flood measures have been undertaken to reconstruct lake dykes and water courses and open storage areas. These reduce the pressure on Tungting Lake by diverting the floodwaters into a detention basin before they enter the lake.

The climate in the Tungting valley is temperate and rainfall is plentiful. The flat alluvial plain around the lake is fertile and suited to rice and cotton. This lake too abounds in aquatic products and is good for water transport.

Hungtse Lake in the western part of Kiangsu Province is China's third biggest fresh-water lake with an area of 2,500 square kilometres. It is irregularly shaped, like a swan in flight, zigzag in the northwestern shore but relatively flat in the southeast.

Its floor higher than the surrounding ground, Hungtse Lake has an average depth of less than four metres. The biggest river flowing into it is the Huai. Most of the lake water empties into the Yangtze except for a small part that goes through the North Kiangsu Main Irrigation Canal into the Yellow Sea. The lakeside plain grows rice and wheat and the lake itself teems with fish of some 40 kinds, including the common carp, black and golden carp, and bighead. Other products are shrimps, clams, water chestnuts and lotus root.

In ancient times this lake was a shallow bay which later became cut off from the sea when sediment gradually filled the outlet. As a lake, it deteriorated steadily before liberation because the feudal rulers through the ages and the Kuomintang reactionaries paid little attention to water conservation. Silting raised the bed of the Hungtse above the surrounding ground so that the lake spilled over in flooding season and dried up in drought.

In 1951 Chairman Mao called on the people to harness the Huai. Work on Hungtse Lake was made an important part of the project. The dyke on its eastern shore has been strengthened, and the North Kiangsu Main Irrigation Canal and boat and water locks have been constructed. Now the lake's volume of water has increased, making it an asset for irrigation and transport.

Taihu Lake in southern Kiangsu Province has an area of 2,200 square kilometres. The lake is shaped like a half moon except for the northeastern part where the shore juts



Taihu Lake.

out in several points. In the eastern section there are two peninsulas and some 90 islets, most of them covered with huge jagged rocks. Its biggest islets are the East and West Tungting hills, and Machi Hill located in the northwestern part and covered with bayberries.

The Taihu was originally part of a shallow sea. Encroachment by sand bars in the Yangtze and along the coast enclosed it to form the present-day lake, with water emptying into the Yangtze through many outlets.

For a thousand years or more in the past, water conservation in the Taihu region received some attention because the feudal rulers wanted to ensure their income from rents and tribute rice from the area. But from the time of

the Opium War of 1840 to the liberation in 1949, conditions deteriorated. Landlords on the shores erected their own dykes to reclaim land, reducing the size of the lake. The in-flowing water did not drain away freely, and sea tides often surged in so that the lake flooded over nearly every 10 years.

After liberation, many reservoirs were built in the hill regions to reduce flooding. Drainage channels and harbours were dredged and locks were built to hold back the tides. Within the basin, the people have undertaken small-scale water conservancy projects; they have strengthened dykes and dams and built electric irrigation and drainage stations. The Taihu Lake project, combining storage and discharge, has made marked progress.

A warm climate, plenty of rain, fertile soil and clearly defined seasons make the Taihu basin, a "water country," an important farming area between Kiangsu and Chekiang provinces, producing rice, wheat, rapeseed and cocoons. Apart from being a "land of fish and rice," this is a region having good navigation and famous scenic spots that attract tourists. Beautiful Soochow lies to the lake's east and Wusih to the north, with China's biggest industrial centre Shanghai only 80 kilometres away.

Tienchih Lake lies just south of Kunming, capital of Yunnan Province. Formed by a fault in the earth's crust, it has an area of 330 square kilometres and a depth of 5-8 metres. The surface is 1,880 metres above sea level. The lake is shaped like a crescent, with long narrow flats on both sides. Hilly terrain runs down close to the western shore, making it very steep. More than 20 rivers discharge their water into the lake, whose outlet is the Putu River on the north. Sharp head drops provide a rich potential of hydraulic power. The lake is known for its brisk water transport and the carp and other fish bred there.

On the lakeshores, rice grows luxuriantly in the year-round spring-like climate.

Chingpo Lake, or Mirror Lake, is situated on the upper Mutan River, 50 kilometres southwest of Ningan, Heilungkiang Province. Some 430 metres above sea level, it was formed by lava from a volcano which blocked the river channel. Being the biggest among China's lakes of such formation, it has an area of 90 square kilometres and many good bays. The uneven lake bed projects above the water in many places, forming small rocky islets. The water rushes through outlets on the north of the lake, in twin waterfalls,



Towing logs on Chingpo Lake.

each about 20 metres high and 40 metres wide. A hydro-power station has been built nearby. Growing luxuriantly in the Chingpo Lake basin are forests and many kinds of wildlife.

Major Salt Lakes

The principal salt lakes are Chinghai Lake (Koko Nor), Charhan Lake, Namu Lake (Nam Tso) and Chilin Lake (Ziling Tso), all located on the Chinghai-Tibet Plateau; Chuyen Lake (Ga-

shiun Nor) and Lop Nor in the Inner Mongolia-Sinkiang region.

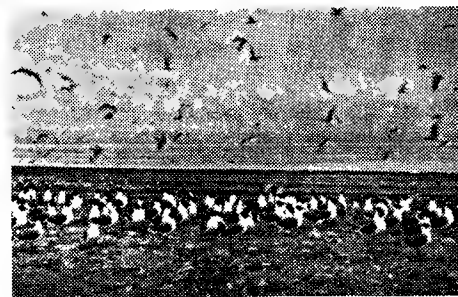
Chinghai Lake, whose ancient name is "West Sea," is China's biggest salt and inland lake. Shaped like a pear, it is situated in northeastern Chinghai Province, 80 kilometres west of Sining, the provincial capital. With an area of 4,400 square kilometres and a depth of 38 metres at the deepest spot, it was formed when a fault occurred about a million years ago. At that time it was the source of the Huangshui River, a tributary of the Yellow River. As the climate in the region turned dry and the terrain around the lake rose, its outlets became blocked.

Mountains rise to the north, east and south of the lake. More than 50 rivers flow into it, the biggest being the 200-kilometre-long Puha River. The lakeshore is of sand and pebbles, except on the south which is a steep cliff washed clean by centuries of pounding waves. Along the bottom of the lake a mountain ridge runs from east to west. Of the four peaks that rise above the surface as islets, the biggest is Haihsin Hill.

The lake basin favours all-round development of farming, animal husbandry and fishery, and the lake itself abounds

in the scaleless *huang* fish, and pike. Many livestock and crop farms have been set up on the lush lakeshores.

Namu Lake, north of Lhasa in Tibet, has an area of over 2,400 square kilometres. Lying 4,627



Chinghai Lake shore.

metres above sea level, it is a big lake with the highest elevation in the world. Its basin provides rich wildlife, such as wild ox and goat, and water fowls.

Lop Nor on the eastern edge of the Tarim Basin in Sinkiang covers 2,000 square kilometres. It is a typical shifting lake in China, its area and shape changing continually. The lower Tarim River changed its course three times in the past 2,000 years, and with it the lake shifted its site back and forth between latitudes 39° - 40° N. and 40° - 41° N.

In the past, every time Lop Nor fluctuated, the original water channels and the lake itself became a desert area, while the original desert area was turned into a lake. As Lop Nor is created by the flooding of a river, it has no distinct shorelines, which often change in the surrounding alkaline swamps. It also has an indefinite depth and varying volume of water. Around it are numerous sand dunes and white salt crusts. Though the lake does not have prospects for water transport or service to agriculture, it yields useful saline and alkaline compounds for the chemical industry.

Deserts

CHINA is a country of many deserts. Vast sand and stone deserts, covering a total area of more than one million square kilometres, run from the western part of the Sinkiang Uighur Autonomous Region in northwest China to the western part of Heilungkiang Province in northeast China.

The Taklamakan, Kurban-Tungut, Badan Jiryn and Tyngeri deserts, lying from west to east, are well known in China. Taklamakan, the largest, occupies an area of 320,000 square kilometres. The dunes here vary in size and shape. Some look like pyramids, some extend for more than 40 kilometres. Huge sand hills in the Badan Jiryn Desert rise 300-400 metres.

The stone deserts (gobi), consisting of gravel and pebbles, are mainly in northwestern Kansu, northern Inner Mongolia, the Tarim and Dzungaria basins in Sinkiang, and northwestern Chinghai Province.

The formation of deserts in China is dependent on the geographical location and the climate. The deserts are located deep in the hinterland, far from the sea. The Chinghai-Tibet Plateau, the Chinling Mountains, the Liupan Mountains, the Luliang Mountains and the Greater Khingan range block the

moisture-laden monsoon from the sea, so the hinterland is dry, with little rainfall. Also, most of the deserts are in the interior basins where there are thick layers of loose sand sediment which is easily picked up by a strong wind. All this provides conditions for the formation of deserts.

Rich Natural Resources

A desert is usually thought of merely as a vast expanse of sand, as a desolate, uninhabitable, waste area — deserted — without any animal or plant life. Actually this is not necessarily so.

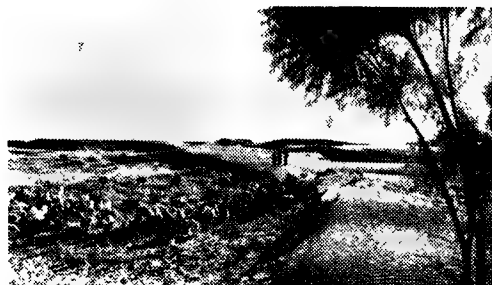
Since the founding of the new China, the government has sent many teams to carry out multi-purpose survey of the deserts. Subsequently, a dozen or so experimental stations have been set up in the desert regions to do research work on the transformation of deserts. Repeated surveys show that China's deserts are rich in natural resources.

Desert regions have long hours of sunshine and high temperatures. If water is available for irrigation, various temperate-zone crops can be grown and may even give higher yields than in some areas with a temperate climate. For example, the oases in the Turfan Depression and the Tarim Basin of Sinkiang are noted for their good yields of wheat and cotton, and are the country's principal sources of long-staple cotton. The seedless white grapes of Turfan and the sweet Hami melons have long been well known both at home and abroad.

Rainfall varies in China's desert area. The eastern part has relatively more rainfall, with an annual average of 250-400 mm., and plants grow well there. Big and small lake basins, known as "pearls in the desert," have been formed in some places. The Tyngeri Desert has more than 100 such lake basins, and the Ulanpuhe, Maowusu and Lesser Tyngeri

deserts in Inner Mongolia also have varying numbers of them. For centuries, the people of minority nationalities have lived

around these lake basins, grazing their flocks on the excellent pastures there.



On the desert in the Bayan Naor League of Inner Mongolia.

The western part of the desert area has little rainfall. Huge quantities of melting snow from the high

mountains around the deserts and the ample underground water in the piedmont plains, however, make the growth of vegetation possible. Large tracts of dense tamarisk and poplar forest occur on the margins and in the river valleys deep in the deserts. The Taklamakan alone has a total of 420,000 hectares of poplar forest along the banks of its rivers. These forested sections can be used as pastures, while nearly 200 million *mu* of fertile wasteland is available for reclamation.

Over 400 different kinds of plants grow in China's deserts, about half of which are wild and include such important medicinal herbs as ephedra, licorice and *Cistanche deserticola*. Lop Nor hemp (a wild variety), *Achnatherum splendens* and reeds are fibre sources. Having a fine, long staple, Lop Nor hemp is now used as raw material in the manufacture of high-quality fabrics and is planted over wide areas in the deserts, especially in the Lop Nor area of the Tarim Basin, and in the Tsaidam Basin.

China's deserts are also rich in mineral resources.

Deserts Being Transformed

Before liberation, when China was a semi-colonial and semi-feudal country, the resources in the deserts were neglected and even damaged by the Kuomintang reactionaries and their imperialist masters. Moreover, many villages were buried by shifting sand, a serious menace to the local people.

After the founding of the People's Republic of China in 1949, the Party and the government began leading the people to transform the deserts, and these began to look different.

Before liberation, much of the farmland in the western part of northeastern China was buried or destroyed by large quantities of sand carried by strong winds from the north in winter and spring. Since 1952, extensive shelter belts have been planted to anchor the sand over an area 1,000 kilometres from north to south and 500 kilometres from east to west.

In northwestern Kansu Province and along the southern bank of the Yellow River in Inner Mongolia are vast shifting deserts. Because of little vegetation, the shifting sand moved steadily towards the southeast, encroaching on farmland and pastures, blocking canals, cutting off communications and even burying some towns. Since 1949, the people here, too, have planted grass and shelter belts over wide areas to fix the sand.

Formerly very much at the mercy of sandstorms, Minchin County on the southern margin of the Tyngeri Desert is now green with trees. The whole county has built wind-breaks covering an area of 500,000 *mu*, as well as more than 100 shelter belts with a total length of 830 kilometres. They have also enclosed two million *mu* of desert land to allow



Reservoir in the desert, Minchin County, Kansu Province.

a natural growth of grass, and laid fresh soil over 28,000 *mu* of sand. In Ching-pien and Yulin counties on the southern margin of the Maowusu Desert, the people have converted 200,000 *mu* of desert land

into farmland, brought water into the desert and planted trees, so that the area has become an oasis crisscrossed with canals.

Over the past two decades and more, the local people and the People's Liberation Army land reclaimers have transformed tens of millions of *mu* of desert land, more than 14 million *mu* having been brought under control in Inner Mongolia alone. And, compared with pre-liberation days, the total area of arable land in the Sinkiang Uighur Autonomous Region has increased by 150 per cent. Large tracts of desert there have become fertile oases.

Fruitful Experiment

The Paotow-Lanchow Railway, which links northern with western China, was the country's first rail line to cross desert regions. It passes through desert in six different places, for a total of 40 kilometres. The longest stretch, 16 kilometres, is in Shapotou in the southern Tyngeri Desert. It is an area of sand dunes where the climate is dry and strong winds blow frequently.

To prevent the encroachment of shifting sands on the railway lines, the Institute of Glaciology, Cryopedology and Desert under the Chinese Academy of Sciences, in co-ordination with departments of communications, set up an experimental station there in 1956. The scientists have co-operated with local forestry station workers and members of people's communes in experimenting with means of holding down the sand along the railway lines. Years of concerted effort



Scientific workers study the Tyngeri Desert to find ways of transforming and utilizing desert land.

have resulted in covering the sand dunes with a "grid-iron" of fertile soil and planting it with grass and sand-fixing shrubs. Today, expanses of such sand-holding "grid-irons" protect the railway on both sides. Trains pass through the deserts smoothly, and

safely—a new achievement in the science of sand control in China.

In 1971, P.L.A. land reclaimers succeeded in planting rice over a large area on the northern fringe of the Kupuchi Desert in Inner Mongolia. People flocked to see for themselves the marvel of green paddy flourishing on the once barren desert land.

Soils

THE varied patterns of climate, rocks, topography and vegetation over China's vast territory, and its long history of agricultural development have given it many kinds of soil. As one moves from the southeast towards the northwest one passes through regions of forest soils (including red earth and brown forest soil), forest-steppe soils (including black earth and cinnamon soil), steppe soils (including chernozem and chestnut soil), desert soil, semi-desert soil, etc.

Types and Distribution

Red earth: Distributed mainly south of the Yangtze, in the provinces of Hunan, Kiangsi, Fukien, Taiwan, Szechuan, Kwangtung, Yunnan and Kweichow, and the Kwangsi Chuang Autonomous Region, red earth covers a greater area than any other type of soil in China.

The origin of red earth, one of the oldest soil types, can be traced back 50 to 60 million years. Under conditions of high temperatures, heavy rainfall and luxuriant plant growth, the mineral and organic substances underwent a strong and thorough decomposition. A greater part of the

easily soluble nutritional elements were leached out, leaving a high percentage of sesquioxide which gives the soil its red colouring. This kind of soil can be made quite fertile by applying organic fertilizer in quantity, growing green manure crops and neutralizing its acidity with lime. The red earth areas yield grain, and also such tropical products as coffee, cocoa, rubber and oil palm, and other industrial crops.

Yellow earth: Similar in nature to red earth, it is found in the tropical and sub-tropical regions of the south.

Paddy soil: Created in the rice paddies over long years of cultivation, this soil is quite fertile. It exists chiefly in the tropical and sub-tropical regions of the south.

Brown forest soil: This is found mainly on the Shantung and Liaotung peninsulas along the northern coast, and in the hilly and mountainous regions of the Changpai and Lesser Khingan ranges in the northeast. This sticky yellowish brown soil is more fertile than red earth. As it drains well, it is suitable for growing both field crops and fruit. North China's brown forest soil area is well known for its apples, pears, persimmons, walnuts, chestnuts and other fruits and nuts.

Podzolic soil: Small areas of this type of soil are scattered in the northern parts of the Greater Khingan and Altai mountains.

Chernozem and black earth: Chernozem is found mainly in the western part of the Northeast Plain and the eastern part of the Inner Mongolia Plateau. It was formed under the steppe vegetation of leguminous plants and gramineous-type herbage with dense roots which, when decayed, turn into humus far down in the soil. There is thick, well-structured black surface soil with a rich humus content. Beneath it is a yellowish-white caliche horizon.

Black earth occurs chiefly in the northeastern part of the Northeast Plain, where the climate is somewhat humid. Here the horizon of black earth is thicker, but there is no caliche underneath. This type of soil is similar to the prairie soil of North America.

Chernozem and black earth, being extremely fertile, are known as the "king of soils." Long years of reclamation and cultivation have made granaries of large areas of chernozem and black earth land.

Chestnut soil: This is found mainly in the inland areas northwest of the chernozem region, that is, in eastern Inner Mongolia and northern Shensi and Shansi provinces. The climate in these areas is comparatively dry and the steppe vegetation has gradually dwindled. With less humus, the soil becomes a chestnut brown and relatively poor in structure, but its fertility is still fairly high. The regions of chestnut soil serve as centres of animal husbandry.

Cinnamon soil: The main areas where this soil occurs are on the alluvial plains formed by the Yellow, Huai and Haiho rivers, and the eastern part of the Loess Plateau, including Shansi, Shensi, Hopei and Shantung provinces.

This soil region was brought under cultivation earlier than any other, and is the cradle of Chinese culture. Suffering frequently from natural disasters such as drought, flood and sandstorm, and from salinization, this region in the past was not able to grow sufficient grain to feed itself, and had to depend on supplies from south China. After liberation, determined to become self-reliant, the local people put a great deal of hard work into a massive campaign for land improvement, centred around building water conservation projects. Their efforts have gradually changed the natural look of this region and achieved good harvests several years in a

row. The region is ceasing to be dependent on grain from the south.

Desert and semi-desert soils: These are found in the vast inland region of the northwest through which the historically famous "Silk Road" passed, including the provinces of Kansu and Chinghai, the Ningsia Hui Autonomous Region and the Sinkiang Uighur Autonomous Region. These soils have a coarse texture and low humus content, but are rich in various mineral elements.

Areas of desert and semi-desert soils frequently suffer from drought and sandstorm, as well as salinization of the soil. The working people of the various nationalities that live there have struggled stubbornly against these, generation after generation. Irrigation by *karez*, underground channels bringing water from the mountains, and farming in fields strewn with stones to prevent evaporation of moisture are two methods they developed through practice over the years. Oases have been created in the vast desert and semi-desert soil expanses, particularly in places along the "Silk Road," and many new grain- and cotton-growing centres started there. Two of the better-known among them are sections reclaimed along the Tarim River in southern Sinkiang and at Shihotzu in northern Sinkiang.

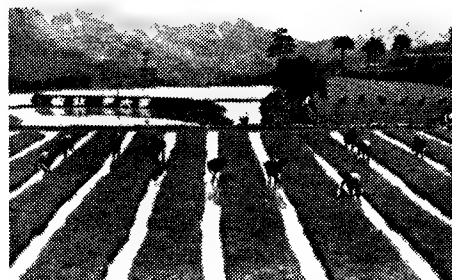
Saline-alkali soil: This type of soil is found extensively in low-lying areas such as the coastal plains, and the plains, basins and valleys of arid and semi-arid inland regions. Because the groundwater table is high and there is great evaporation of surface water, easily soluble salts of many kinds in the subsoil are drawn up into the topsoil, making the land unsuitable for growing crops. Work to improve the soil, however, can turn these areas into fertile fields.

As one crosses the Chinghai-Tibet Plateau from southeast to northwest, mountain forest soil, mountain meadow-

steppe soil, mountain desert soil and mountain semi-desert soil are found in that order.

Soil Amelioration and Utilization

In old China, vegetation was damaged by indiscriminate felling of trees, overgrazing of grasslands and years of improper cultivation. This led to serious erosion and destruction of the country's soil resources. The erosion of the red earth in the south and of the cinnamon and chestnut soils in the north are examples. Most of the saline-alkali soil and desert soil badly suffering from sandstorms were not improved and made use of.



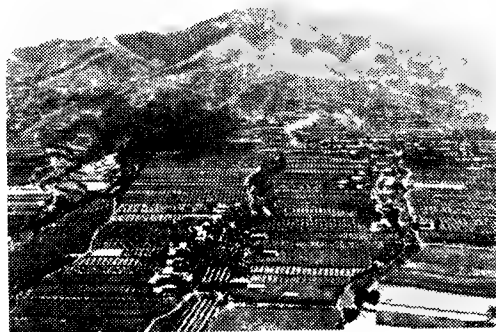
Large tracts of rice seedlings are cultivated on red soil by the Lota People's Commune, Lungshan County, Hunan Province.

Soon after the birth of the new China, investigation and studies were begun on how to prevent erosion of the red earth and raise its fertility. Now through scientific application of fertilizer, proper crop rotation, diversified cultivation

and terracing, the people in the red earth areas are improving the soil and consequently raising agricultural output.

In order to solve the problems of the serious erosion of the cinnamon and chestnut soils in the middle reaches of the Yellow River, programmes for investigation and control

centring around water and soil conservation have been developed. In the area drained by the river, 12 million *mu* of fields now terraced and 30 million *mu* planted to trees and grass are gradually bringing water loss and soil erosion under control.



Orchards on cinnamon soil in the Taihang Mountains.

In the desert soil area where shifting sand used to encroach on the cultivated land, a lot has been done to change the situation by the peasants and scientists since the people's communes were formed in 1958. In the past 10 years or more, many districts have built shelter belts to block the sand. One of these, east of Tunhuang County in Kansu Province, is 1,600 kilometres long. In the Inner Mongolia Autonomous Region, 14 million *mu* of shifting sand have been brought under control. All these efforts have reduced the damage done by sandstorms and added to the existing cultivated acreage.

Work on reclaiming saline-alkali soil has made progress in recent years through control of water. On the plains of the Yellow, Huai and Haiho rivers, which account for over 70 per cent of the total saline-alkali soil area, digging of new canals and widening of old river courses have raised the capacity for drainage and flood release. The groundwater table has been lowered and, coupled with the building of

"raised fields" and "strip fields," the acreage of saline-alkali fields has gradually been cut down. Half the saline-alkali land that existed before liberation in the more seriously affected Hopei, Shantung and Anhwei provinces has been improved.



Cropland transformed from barren saline-alkali soil (left) by the Chaoyang People's Commune of Lienyunkang, Kiangsu Province.

Centred around water and soil conservation, the nationwide mass movement to transform China's mountains and rivers is taking another step ahead to rational utilization of soil resources, improvement of soil and expansion of the acreage giving stable and high yields, in order to further develop China's agricultural production.

Vegetation

CHINA has almost 30,000 species of higher plants, nearly every kind of vegetation that is found in the northern hemisphere. Owing to the varying degrees of influence of the ocean monsoons, as one travels from southeast to northwest, one passes through first the humid, then the semi-arid and finally the arid climate belts and three corresponding regions of vegetation: forest, grassland and desert. As cultivated fields account for only 11 per cent of China's land surface, vast areas of natural vegetation remain to be opened up, utilized and transformed in accordance with local conditions.

Regions of Humid Forests

Within the various regions of this type are found cold-temperate, temperate, sub-tropical and tropical forest vegetation. In general, these are regions of very old civilization and they are densely populated, so the plains and low hills have become farmland. Natural forests are preserved only in the mountains. These forests contain some 2,000 species of trees, most of which are excellent timber.

Cold-temperate deciduous needle-leaf forest region: The thick needle-leaf forests distributed over the Greater Khingan Mountains in northernmost China give them the name "sea

of trees." In addition to the light-loving larch, which is highly resistant to cold, the region also has such evergreen needle-leaf types as spruce and pine. These trees are particularly suited to the severe cold because the small area of their needle leaves reduces water loss by transpiration to a very low level during the winter when water is unobtainable from the frozen soil. These are hardwood trees, excellent material for boats, carts, musical instruments and paper.

This region is one of China's most important timber sources.

Temperate deciduous broad-leaf forest region: The broad-leaf trees in this region, sometimes called the summer-green forest region, grow thick foliage in summer and lose their leaves in winter. The region has many broad-leaf forests similar to those in western Europe, northeast Asia, northern Japan, the Korean Peninsula and eastern North America.

The mountains of northeast China are covered with mixed forests of elm, maple, linden, birch and ash, as well as the straight-trunked red pine. Some of the halls of the Imperial Palace in Peking are made from the strong wood of the latter. In the mountains of north China and on the Liaotung and Shantung peninsulas there are various kinds of oak forests and mixed forests of oak and Chinese pine. The native oak is economically important since its leaves provide food for silkworms which produce the local "wild silk," or tussah. This is also China's main region for deciduous fruit trees. Apples, pears, peaches, grapes, dates and persimmons, as well as walnuts and chestnuts, are widely cultivated. The plains are given over to farming, and this is an important area for producing wheat, cotton and coarse cereals.

Sub-tropical evergreen broad-leaf forest region: The vast sub-tropical region has a rich variety of vegetation.

Szechuan Province alone has almost 10,000 species of higher plants. Trees with oval-shaped leaves, green the year round, grow on the hillsides and in the valleys of this region. Here are found the largest sub-tropical forests in the world at this latitude, while those parts of Africa, southwest Asia and Central America at the same latitude, having a dry climate, are mostly desert or grassland.

This vast region contains some species no longer found in other parts of the world. Many plants which were widely distributed over the globe during the Cretaceous period (58 million years ago) are now almost non-existent as a result of the action of the glaciers of the Quaternary period. Parts of China's sub-tropical region, however, were not completely covered by the glaciers, and became "sanctuaries" for some plant forms from past geological eras. One of these is the ginkgo tree. It was widely distributed over the earth during the Cretaceous period, but today, in many parts of the world, only fossils of it are to be found. However, this tree still flourishes in its wild state in China's sub-tropical region. The oldest of the ginkgo trees date from about a thousand years ago. The wood is used for carving, making blocks for printing, and in construction. The seeds are edible and, as an ingredient in cough medicine, serve to ease congestion in the chest. The leaves are also used in medicine.

The metasequoia tree native to the Szechuan-Hupch border is another remnant from the Cretaceous period. Very adaptable, it grows well in both north and south China. The cathaya tree, growing widely over the globe during the Tertiary period (one million years ago), was discovered in the mountains of southern Szechuan and northern Kwangsi in 1957.

Various kinds of commercial forests also thrive in the sub-tropical region. Moso bamboo covers some mountains

like a green sea. Many tracts of red soil which were wasteland before liberation have now become luxuriant tea plantations. On some slopes are grown tea-oil tree, the seeds of which are pressed to provide a kind of staple edible oil used by southerners, tung-oil and lacquer trees, whose products make excellent wood finishes, and the tallow tree, whose seeds are used to make synthetic oils. China fir and horse-tail pine, which provide timber for building, are distributed throughout this region. In recent years, large areas have been seeded to pine trees from the air with good effect.

The 4,000-metre-high mountains of western Szechuan located within this region bear various types of forests. The shoots and leaves of a kind of wild bamboo growing in these mountains are the chief food of the giant panda, who likes the cold-temperate climate there. The mountains of the southwest are indeed a big natural garden, with brightly coloured azaleas, primroses and many varieties of camellia, including a large flaming red type which has been famous since ancient times.

Agriculturally, this region is China's major rice producer.

Tropical rain-forest region: Precipitation is 1,200 to 2,200 mm. annually in the southern parts of Kwangtung, Fukien, Taiwan and Yunnan provinces and the Kwangsi Chuang Autonomous Region of south China. In well sheltered valleys one finds thick evergreen broad-



forested hills of south China.

leaf rain-forests with a wide variety of trees of different heights, some up to 40 metres. Some massive trunks are supported by buttress-like roots taller than a man and entwined with thick vines. Graceful ferns and brilliant orchids flourish on other trees.

In the tropical bays one can find "ocean forests" of red-wooded mangroves growing out of the water. Some species throw out from their base a tangle of prop roots in the shape of arches which enable them to stand up to strong wind and lashing waves. Others have air-roots which, projecting above the mud, supply the submerged roots with air from above. A number of the mangroves produce viviparous seeds, which germinate while still attached to the tree, so that when they drop they readily take root in the shifting mud.

In this region one can also find ever green orchards of tropical fruits—the banana, lichee, longan, mango and betel nut—as well as plantations of industrial crops such as rubber, cocoanut, coffee, cacao, black pepper and oil palm. There are also fields of pineapple, sugar cane and sisal hemp. The provinces of Kwangtung and Taiwan are major producers of sugar cane and camphor, Taiwan being the world's largest camphor producer.

Regions of Semi-arid Grassland

Temperate grassland region: With a semi-arid climate, the Northeast Plain and the eastern portion of the Inner Mongolia Plateau are a vast prairie covered mainly with perennial grasses. These grasses have long, narrow blades which, being woolly and curling towards the midrib, help prevent excessive loss of moisture. Some plants on the grasslands have deep roots to tap moisture far down in the soil. This region's goat grass and leguminous forage plants are quite high in nutritional value, making it China's main livestock-



On the pastureland of the Silinghol League, Inner Mongolia.

raising centre. In the warm and hot seasons, when the grass is green and a variety of flowers are in bloom, the grasslands look like a multi-coloured carpet. The main domestic animals here are sheep, cattle and horses. The cattle and horses from Sanho in the Hulunbuir district are fine breeds famous throughout the country.

A number of places in this region have been turned into agricultural centres. Many state farms which go in for both crop raising and stock breeding have been established on the great grasslands of the northeast. Their main crops are soyabbeans, sorghum and sugar beets. Irrigation from the Yellow River has turned the Hotao area at the top of its Great Bend in Inner Mongolia and Ningsia into a granary north of the Great Wall. The grasslands of the Loess Plateau have almost all been turned into farmland.

Alpine meadow-grassland region: The east-central and southern portions of the Chinghai-Tibet Plateau are 4,000 metres above sea level and have no summer. The melting of glaciers produces many marshes and lakes, and meadows

with lush grass and flowers. The sunny slopes of the mountains provide ample grazing grounds. Yaks, Tibetan goats and sheep are the main domestic animals there. The valleys of the plateau grow such cold-resistant crops as spring *chingko* barley and turnips. Since liberation, winter *chingko* barley, winter wheat and buckwheat have been planted successfully in some places.

Regions of Arid Desert

Temperate desert region: Sinkiang, Kansu and the Tsaidam Basin in Chinghai Province are in the temperate zone. The sand and stone deserts there support few plants. The growth is sparse and there are stretches with no vegetation at all.

Among the few plants that grow in the sand deserts of this region are saxaul shrubs, which can be used as fuel and building material, wormwood which holds the sand in place, and the sparsely scattered tamarisk. On the stone deserts there are calligonum and ephedra. All the above-mentioned, except ephedra, make excellent camel fodder. The leaves of some of these plants are vestigial, their function having been taken over by green branches, which reduces transpiration. Some have roots over a dozen metres long for absorbing moisture at such depths. In those desert places where underground water is near the surface, Euphrates poplars are found. This species has two different kinds of leaves growing on the same tree, one shaped like those of the common poplar and the other like those of the willow, both being excellent fodder for camels and goats. This tree is the main source of timber in the desert.

The vast grasslands and meadows on the lower slopes of the high mountains are good grazing grounds. There are timber forests on the upper slopes. The melting of the per-

petual ice and snow on the peaks supplies water to irrigate the oases in the deserts below. They are where China's best long-staple cotton is grown. The basins in this region specialize in growing fruit such as grapes, watermelons and Hami melons. Because of the strong sunlight and the great difference in day and night temperatures — favourable for concentrating sugar — the fruits are extraordinarily sweet.

Alpine desert region: The northwest corner of Tibet, standing at 5,000 metres above sea level, has even sparser vegetation, with fewer varieties. Only short, small shrubs are found here. Some of these are creepers, others are cushion plants, forms adapted to resisting wind and cold and preserving moisture. The melting snow from the peaks forms beautiful blue lakes. Some of the lakeshores and riverbanks are rimmed with a growth of the shrub *Myriearia*, which is resistant to cold and drought. In summer its green leaves and red flowers against the white snow-topped mountains and blue lakes present uniquely beautiful sights of the Northern Tibet Plateau.

Natural Resources

CHINA'S vast territory provides rich natural resources in land, heat, water, forests, grasslands, wildlife and marine products.

Land The present 1,600 million *mu* of cropland is concentrated mostly in the plains which, with thick topsoil and suitable climate, constitute the most important farming areas. China's vast plains are distributed mainly in the eastern part of the country along the seacoast. In general, they do not rise more than 200 metres above sea level. The terrain rises and falls gently, the relative heights of the plains varying not more than 50 metres.

The Northeast Plain is situated between the Greater Khingan, Lesser Khingan and Changpai mountains. Its northern part is fertile black soil. The wide stretches of land yield one dry crop a year. Its main crops of sorghum, spring wheat, soyabean, millet and rice make it one of China's important granaries. It leads the country in sorghum and soyabean production.

The North China Plain extends to the southern foothills of the Yenshan Mountains in the north, the Taihang Mountains in the west and the Huai River in the south. The al-

luvial soil was formed mainly by the Yellow, Huai and Haiho rivers. It is China's largest and earliest cultivated area. The plain is mostly of brown soil, with saline-alkali soil in the low-lying and coastal areas. Its main products are winter wheat, maize and sorghum. It is also rich in cotton, peanut, tobacco, sesame and other industrial crops. Most are dry crops harvested three times every two years.

The Middle-Lower Yangtze Plain stretches from Ichang in the west to Shanghai in the east along the banks of the middle and lower Yangtze River. The alluvial soil deposited by the Yangtze is crisscrossed with numerous rivers and streams and studded with lakes. With fertile soil, easy irrigation and warm and humid climate, this plain is China's main producer of rice and has long been known as the "land of fish and rice." It also produces wheat, cotton, rapeseed and cocoons.

Apart from the three major plains mentioned above, there are many smaller ones along the southern seacoast, of which the Pearl River Delta is one. Virtually frost-free the year round and with rich soil and plentiful rain, these plains yield two crops of rice a year and quantities of tropical and subtropical crops. Wheat and tuber crops are grown in winter.

Inland plains include the Fenho-Weiho Plain in the connecting valleys of Shansi's Fenho River and Shensi's Weiho River, the Chengtu Plain in the western part of the Szechuan Basin, the Yinchuan Plain in Ningsia, the Houtao Plain in Inner Mongolia, and the oases in Sinkiang and western Kansu. Although small, their rich soil and irrigation make them important grain and industrial crop areas.

Heat China is rich in heat resources. With an annual cumulative temperature exceeding 10,000° C., the Nansha Islands region in southernmost China ranks first in terms

of heat, and has three crops a year. Even in the Heilung River valley in the northernmost part of the country, the annual cumulative temperature amounts to 1,500° C., facilitating the growth of spring wheat, potatoes, millet, etc.

According to the amount of annual cumulative temperature, the land can be divided into five regions: (1) one-crop-a-year region (cumulative temperature 1,500° C.-3,500° C.); (2) three-crops-in-two-years region (3,500° C.-4,500° C.); (3) two-crops-a-year region (4,500° C.-5,000° C.); (4) two-rice-crops-a-year region (5,000° C.-6,000° C.) and (5) three-crops-a-year region (6,000° C.-8,000° C.). Generally speaking, the one-crop-a-year region is north of the Great Wall. The Chinling Mountains-Huai River line, an important demarcation in Chinese physical geography, divides the three-crops-in-two-years region from the two-crops-a-year region.

Since liberation, the superior socialist system has enabled the working people to take measures to make full use of heat, such as building water conservation projects, selecting fine strains of seed, preventing the harm done by cold and pests, constantly improving cultivation practices and carrying on active struggles against nature. Double cropping of rice, for example, has extended from south of the Yangtze to areas north of it. The countryside in suburban Peking is moving from three crops in two years to two crops a year.

Water "Irrigation . . . is the lifeblood of agriculture."

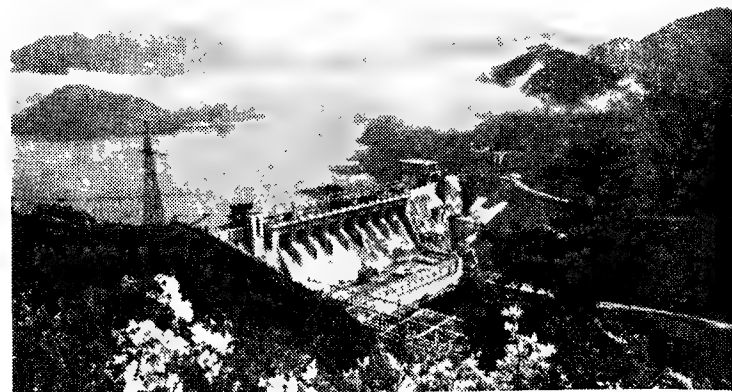
This statement by Chairman Mao expounds the importance of water to agriculture. China has numerous rivers and streams which offer abundant water resources.

With tall mountains in the west and the terrain sloping to the east, most of the longer and bigger rivers flow east into the Pacific Ocean, on whose west coast China stands. The cli-

mate is strongly influenced by the monsoons, and the summer monsoon, laden with moisture from the Pacific, brings plentiful rain to the inland.

Most of the main rivers originate in the highlands or mountains and have a large volume of flow. According to rough estimates, the annual total volume of flow of all Chinese rivers is 2,700,000 million cubic metres, but the distribution is uneven, the south having more than the north. The Yangtze basin leads in volume of flow, its annual runoff into the sea averaging 32,400 cubic metres per second. The Yangtze makes up 38.3 per cent of the country's annual total volume of flow; the rivers of the Pearl River valley and in Kwangtung Province as a whole, 17.7 per cent; the Yellow River, only 1.9 per cent. The islands of Taiwan and Hainan make up only 0.71 per cent of the country's area, but their rivers account for 4.85 per cent of the total volume of flow of Chinese rivers.

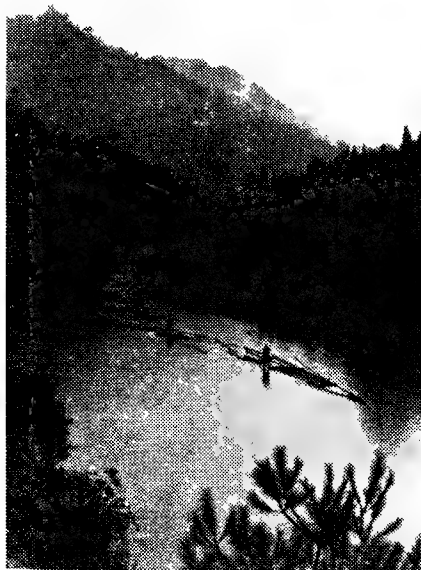
The sharp drop of China's rivers from the high plateaus and towering mountains to the plains and basins creates



The Hsinanchiang Hydro-electric Station, Chekiang Province.

tremendous kinetic energy estimated at 580 million kilowatts of hydro-power. The thousands of dams built since liberation are contributing effectively to preventing flood, generating power and developing irrigation. All the main rivers provide conditions for navigation, and the distances already opened to transport total 160,000 kilometres.

Forests Plateaus and mountains occupy 60 per cent of China's total area. Their vast forests, grasslands and rich mineral deposits contribute greatly to industrial development.



In the Chianghua forest region,
Hunan Province.

Indiscriminate felling and other forms of destruction done by the reactionary ruling classes through the ages had depleted the forest resources which, at the time of liberation, made up less than 10 per cent of the total land area. After liberation, a policy of planned and rational felling, of combining felling with planting, and of multiple utilization of forest resources has been carried out under the Communist Party's leadership, along with

extensive afforestation of barren hills and the planting of forest belts. A steady increase in the forested area has resulted.

Most of China's forests are in the northeast and southwest, and in Fukien and eastern Taiwan Province in the southeast. Forest types are varied and there is a wide variety of trees. Of tall trees alone there are 2,800 kinds. Timber trees of fine quality and high economic value number close to 1,000 kinds, including such special and rare varieties as Taiwania which grows to a height of 66 metres, red cypress with a trunk more than 20 metres in circumference, meta-sequoia, China cypress and golden larch. There are also many valuable medicinal plants which grow in the forest areas.

Rich timber reserves supply abundant materials for developing the construction, paper, textile, and furniture, utensils and tools industries. Oils and essences are extracted from the roots, bark, leaves and blossoms.

Grasslands Grasslands occupy more than one-fifth of China's land area. In Inner Mongolia, they comprise 60 per cent of the region's total area. Sinkiang, Chinghai and Tibet also have vast grasslands. The great variety of grass, lush and rich in nutrients, is a basic condition for stock raising.

The country has numerous fine breeds of stock. The famous Sanho horses of the Inner Mongolia Plateau are good both for riding and for harnessing. The special breed of yak on the Chinghai-Tibet Plateau has great stamina and is suited to the cold climate. The Mongolian sheep of Inner Mongolia are rich in fat, the tail alone weighing 10 kilogrammes. Sinkiang's fine-wool sheep, which provide quality wool and a high meat yield, have been widely popularized.

Wildlife and Marine Products

China has many varieties of mammals, birds, fish and other wildlife.

The known wild animals number over 400. The meat, fur and skin of some are of high economic value, others provide valuable material for medicines. There are many unique species in China's wildlife. Giant pandas and golden-haired monkeys from the high mountain forests of the southwest are rare exhibits at the zoo. The wild horses on the grasslands of Inner Mongolia and Sinkiang, among the very small number still existing in the world, are of great value for scientific research.

China is also rich in marine products. Ocean fishing is fast developing over wide areas, and deep-sea fish account for two-thirds of the 1,500 kinds. The most numerous fresh-water fish include common carp, golden carp, bream, Chinese ide, silver carp and bighead, all of which can be artificially bred. Of the 300 million *mu* of fresh-water area, one-third can be used for raising fish.

Mammals and Birds

STRETCHING over the frigid, temperate and tropical zones and covering high mountains, plateaus, plains, deserts, grasslands and forests, China's vast territory is the home of numerous kinds of wildlife: 1,150 known species of birds and 409 of mammals.

While China covers about 6.5 per cent of the world's land area, its mammals account for 11.1 per cent of the world's total number of mammalian species, and its birds 13.4 per cent of the world's bird species.

As far as mammals and birds are concerned, the northern part of China is vastly different from the southern part.

Greater North China Embracing Sinkiang, Tibet and the district north of the Chinling Mountains and the Huai River, this can be divided into four regions.

The northeastern region, with an extremely cold climate and including areas around the Greater and Lesser Khingan Mountains and the Changpai Mountains, abounds in forest animals conditioned to the cold. Among the rodents the most common are the squirrel and chipmunk, the squirrel being important for its fur. There are also many large

herbivorous animals, like the moose, the sika deer, the red deer (wapiti) and the roe deer. The abundance of these forms is an important factor in enabling the carnivorous animals subsisting on them to thrive. Of these the more important are the Northeast China tiger, the leopard, the red fox and the weasel family, of which the sable is the most important. The skin of the sable, ginseng and *ula* grass are the "three treasures" of northeast China.

The most common game birds of economic value in this region are the hazel grouse, the ring-necked pheasant and the Daurian partridge.

The north China region, including the basins of the Yellow and Huai rivers and the Loess Plateau to the west. One of the main characteristics of this region is the wide distribution in the fields of rodents harmful to the crops, such as the vole, zokor (mole-rat) and hare. This is a transitional region, with animals of both the north and the south. Some of the typical forest animals of the northeast, such as the chipmunk, have spread to the hills in the northern part of this region. Some of the forms of the prairie, such as the ground squirrel and the pika (mouse-hare) are also found on the Loess Plateau of this region, while southern forms like the white-bellied rat and the masked palm civet have also spread northward.

Because of the exploitation of the forests in this region, there are very few large and medium-sized forest animals, except for a small number of roe deer and wild boar. The common carnivorous animals are mainly medium-sized or small species such as the badger and weasel. Birds of economic value include the rock partridge, the brown-eared pheasant and long-tailed pheasant, the last two being found only in this region.

The Inner Mongolia-Sinkiang region, having a dry climate and comprising the western part of northeast China, Inner Mongolia, northern Ningxia, northwestern Kansu, and Sinkiang. The deserts and semi-deserts in the western part of this region have little rainfall, while the prairies to the east have a bit more.

The most common mammals of this region are rodents and ungulates or hoofed animals. Of the rodents, the most typical are those belonging to the gerbil (sand rat) and jerboa families. Also widely distributed are the marmot, ground squirrel, Daurian pika and tolai hare. These are highly reproductive but, being harmful to pastures, they are usually destroyed.

The Mongolian gazelle, which roams in herds over the prairies of the east, and the goitered gazelle, which inhabits the deserts of the west, are the most common among the ungulates. The saiga antelope, a resident of Sinkiang's northwest fringe, is valued for its horns, which are processed for use in traditional Chinese medicine. Special to this region are the Asiatic wild ass, the famous tarpan (wild horse) and Bactrian camel. Among carnivorous animals, most common are the grey wolf and the kit fox.

Birds special to this region are the eastern bustard, the sand grouse, the sand lark and the ground chough, all remarkably adapted to life in the grasslands and deserts. The famous red-crowned crane and blue-eared pheasant are also particular to this region.

The animals in the Altai Mountains in northern Sinkiang are similar to those in the northeastern region. This is the only place in China where the Mongolian beaver, an important fur-bearer, dwells in its natural state at present.

The Chinghai-Tibet region, with a very cold and dry climate and few kinds of food, has far fewer species of animals

than the other regions. They are mainly those forms which are particularly adapted to the highland meadows and cold deserts of the plateau: ungulates like the yak and the Tibetan antelope, rodents like the woolly hare, the Ladak pika and the Himalayan marmot, and carnivores such as the snow leopard and the Tibetan sand fox. The Himalayan marmot and the Ladak pika are the most numerous fur-bearing animals in the region. Yaks under domestication are indispensable to transport in Tibet.

The most common birds are the Himalayan griffon, the Tibetan snow cock, the Tibetan sand grouse and the snow finch.

Greater South China

Comprising the district south of the Chinling Mountains and the Huai River, the Loka district along the Himalaya Mountains, the island province of Taiwan, and the South China Sea islands, this may be subdivided into three regions.

The southwest region begins with the Hengtuang Mountains in western Szechuan and western Yunnan and stretches westward to the southernmost part of eastern Tibet. Most of the mountain ranges in this region run in a north-south direction. The terrain rises and falls sharply, providing a variety of natural conditions. In places high above sea level live northern forms like pikas, marmots, musk deer and hazel grouse, while at lower altitudes dwell southern species such as the rhesus monkey and the large Indian civet.

Some unique, valuable species are found in this region: The giant panda, the red panda, the golden-haired monkey and the takin (ox-sheep) are the most famous of these. The world-renowned giant panda, which looks like a bear but is smaller in size, inhabits the bamboo groves in mountains

2,600 to 3,500 metres above sea level. Living mainly on bamboo shoots, it is commonly known as the vegetarian among carnivores.

Almost two-thirds of China's insectivores are found in this region.

The southwest region is noted for quite a number of peculiar bird species. Most common are the babblers (laughing thrushes) and certain types of pheasants. Of the more than 20 species of pheasants



Golden-haired monkey.



Giant panda in the Wanglang Nature Preserve, northwestern Pingwu County, Szechuan Province.

distributed in various parts of China, almost half are found in this region, including the Tibetan eared pheasant, the Chinese monal pheasant and the embroidered pheasant. About the same can be said of the babblers. This



The monal pheasant with white-tipped tail is peculiar to China.

region is, therefore, known as the paradise of pheasants and babblers.

The central China region, which takes in the lands of the middle and lower reaches of the Yangtze River and its tributaries. The majority of its animals are of the southern group, including the stump-tailed monkey, the large In-

dian civet, the Chinese pangolin (a kind of anteater), and egret and flowerpecker. There are also a few northern species like the penduline tit and the azure-winged magpie.

Species particular to the region are the great pipistrelle, the Chinese river deer and the Chinese river dolphin among the mammals, and the bamboo partridge and the golden pheasant among the birds. Waterfowls that winter in the region's lakes and ponds are part of its rich resources.

The south China region, comprising the southernmost parts of Fukien, Kwangtung and Yunnan provinces and the Kwangsi Chuang Autonomous Region, as well as Taiwan Province and the islands in the South China Sea. The excellent natural conditions of the tropical zone enable this region to have more species of animals than any other region in the country.

Of particular note are those mammals that live in the trees of the tropical forests, such as the tree shrew, the fruit

bat (flying fox), the slow loris and the gibbon. Outstanding among the carnivores are the South China tiger, the large Indian civet and the clouded leopard. Asiatic elephants are found in southernmost Yunnan.

Bird species here include parakeets, hornbills, broadbills and sunbirds. In southern Yunnan live the famous green peacocks and the jungle fowl, the wild ancestor of the Chinese domesticated chicken.

Many tropical forms rarely seen elsewhere in China are found in Taiwan Province and on Hainan Island. Among these are the Taiwan black bear, the Taiwan monkey and the Taiwan long-tailed pheasant; on Hainan Island are the Hainan hare and the peacock pheasant. Gannets, which inhabit the islands of the South China Sea, have created a rich source of manure with their droppings.

Protecting and Utilizing Wildlife

Chairman Mao says that **"for the purpose of attaining freedom in the world of nature, man must use natural science to understand, conquer and change nature and thus attain freedom from nature."**

Hunting, animal farming and nature conservation are among the means for conquering and changing nature. These have a definite place in the new China's socialist economic undertakings, and much progress has been made in these undertakings since liberation, thanks to the correct leadership of the Communist Party.

Hunting: China's extensive mountainous areas provide good conditions for developing hunting. Every year the state purchases a sizable quantity of wild animal hides and skins as well as antlers, musk and other animal ingredients used in medicine. Great quantities of meat from wildlife

also serve as food; in some places meat from hunting amounts to nearly one-third of that from slaughtered domestic animals.

Different animals are hunted in different areas. The main ones are the squirrel, weasel, hare, marmot, musk deer, roe deer, wild boar, Mongolian gazelle and monkey, as well as wild geese, ducks and pheasants.

Animal farming: Farms for breeding traditionally wild animals in captivity are an almost entirely new undertaking in the new China. Animals raised for fur include the sable and otter, which are native to China, and the mink and coypu (nutria) which were brought from abroad. Preserves for muskrats have been established in a majority of the provinces and autonomous regions, and controlled capture for economic purposes is now allowed in many places. State purchases of pelts are rising year by year.

In recent years, deer raising has greatly expanded. While only the sika deer was raised in the past, now the red deer and musk deer are also raised, with some places using the herding method for the sika and red deer. Formerly the deer were killed for their antlers, an ingredient in traditional Chinese medicine, but now these are removed from the live deer. The musk-deer farm in Szechuan Province has begun collecting musk also from the live deer.

Among birds, quail, swans and Tibetan snow cocks are being raised experimentally.

Nature conservation: Quite a few sanctuaries and preserves have been established to protect natural resources and to serve as bases for adjusting the numbers of wildlife, promoting the protection and raising of mammals and birds of economic value, and furthering the work of acclimatization and re-acclimatization. In this way it is possible, beginning from mere protection of wildlife, to move on to measures

which will make the best use of natural conditions to enable wildlife resources to develop and be utilized rationally.

Protection of insect-eating birds, such as titmice, and hanging up nesting boxes for them have been a boon to eliminating insect pests harmful to the forests.

Nature in Transformation

IN China's pre-liberation semi-colonial and semi-feudal society, excellent natural conditions were not rationally utilized, while its rich resources were plundered and damaged. The people's lives and their livelihood were constantly threatened by natural calamities. Nature in old China became more unkind with each passing year.

This picture has changed greatly since the founding of the People's Republic of China in 1949.

Harnessing Rivers

The marked change between dry and wet seasons in the east half of China is influenced by the east Asian monsoons. Both water-logging and drought were frequent in the past.

Chairman Mao said on different occasions: "**Irrigation . . . is the lifeblood of agriculture,**" "**The Huai River must be harnessed,**" "**The Haiho River must be brought under permanent control**" and "**Work on the Yellow River must be done well.**" These important directives in the policy of turning water from a harm into a benefit have been guidelines for the Party and government in leading the people, since liberation, to engage in

massive water control work so as to overcome natural disasters and develop agriculture. Overall plans were made to harness the big rivers, and multi-purpose projects have begun along their entire courses.

Many reservoirs of large and medium size have been built in the mountainous areas along the upper and middle reaches of the various rivers. Innumerable small reservoirs, ponds and man-made lakes have been dug in valleys across the country. All these facilitate the multi-purpose utilization of water resources for irrigation, hydro-electric power, checking of sand and the raising of aquatic products.

The dykes along the middle and lower reaches of the main rivers, inadequately maintained in old China, have been rebuilt or reinforced. New dykes, projects to reduce and detain flood, check dams and networks of irrigation canals have been constructed.

Take the middle reaches of the Yangtze River for example. After the Chingkiang River flood diversion project was completed and the river dyke reinforced, 13 million *mu* of farmland were freed from the menace of flood. (The section of the Yangtze River between Chihchiang, northwest of Shashih in Hupeh, and the mouth of Tungting Lake is called the Chingkiang River.) Since the dykes along the middle and lower reaches are well reinforced and maintained, the Yangtze can effectively handle the tremendous flow of 100,000 cubic metres per second during the high-water season.

The dykes along the lower reaches of the Yellow River, once known as the river of disaster, have been renovated and are well maintained. Stone embankments have been erected in some dangerous sections. These have not breached since liberation.



Embankment on the lower reaches of the Yellow River.

Work on large-scale projects to conquer the Haiho River started in the winter of 1964. For ten consecutive years a huge army of hundreds of thousands of people from Hopei and Shantung provinces, Peking and Tientsin worked on the river during the winter and spring seasons. Scores of main waterways in the southern, northern and western sections of the Haiho system are now being brought under control. Embankments with a total length of more than 4,300 kilometres have been built in the vast area between the Taihang Mountains in the west and Pohai Bay in the east. Large numbers of reservoirs of various sizes have been built in the mountains on the upper reaches, freeing vast tracts of farmland along the middle and lower reaches from flood and waterlogging. The four rivers of the northern section (the Yungting River, the North Canal, the Chaopai River and the Chi Canal) are also being tamed.

The Haiho projects have helped to bring about a tremendous change in Hopei Province, which covers more than half of the river basin. With successive bumper harvests

of grain and cotton, the historically grain-deficient Hopei Province is now self-sufficient, a factor which contributes to changing the old situation where grain had to be brought up from the south to meet the needs of the north.

In Chekiang Province, dykes along Hangchow Bay, now strengthened and well maintained, withstand the typhoon-swept tidal waves. Check dams along the coasts of north-

ern Kiangsu Province have been renovated to keep the tides from washing over coastal areas and prevent salinization of soil. In the Pearl River Delta, Kwangtung Province, dykes built for land reclamation hold back floodwaters from the river's three tributaries along its upper reaches.

The amount of farmland under irrigation has gone up greatly as a result of building and expanding the web-like irrigation



The Red Flag Canal winds through the mountains of Linhsien County, Honan Province.

systems of the Yangtze and Pearl river deltas, the Yangtze-Hanshui Plain, the Chengtu Plain, the flood plains of the Huai, Haiho and the Fenho and Weiho rivers, the plains in the Hotao area along the Yellow River in Inner Mongolia and Ningsia, and in the oases in the northwest deserts. Take the Piho-Shihho-Hangpu multi-purpose project in Anhwei Province for example. Nineteen trunk canals with a total length of 1,200 kilometres and 299 sub-canals with a total length of 3,100 kilometres had been completed by the end of 1970, bringing irrigation to eight million *mu* of farmland. The completion of the People's Victory Canal in Honan Province and the Yellow River irrigation project in the Lichin area (near the mouth of the river) in Shantung Province has turned 1.2 million *mu* of dry land into paddy fields. The ancient Tukiang Dam system on the Chengtu Plain in Szechuan Province has been repaired and enlarged and now irrigates more than seven million *mu* of land. It irrigated two million *mu* before liberation. The completion of the electric pumping irrigation and drainage projects in Chiangtu, between the Yangtze and Huai rivers, plays an important role in preventing drought and waterlogging in the Lihsiaho region east of the Grand Canal in north Kiangsu.

New Forest Belts

China's rather small forest area is distributed mainly in the mountains of the northeast and southwest and in the hills south of the Yangtze River. Before liberation the reactionary ruling classes and the imperialists plundered and destroyed the forests, turning the north and northwest of China, and particularly the greater part of the Loess Plateau, into nearly treeless regions. The labouring people suffered seriously from lack of timber, water loss, soil erosion and sandstorms.

After liberation, and especially since 1956, the Chinese people, inspired by Chairman Mao's call, "**Cover the country with trees,**" have drawn on their revolutionary spirit of self-reliance and hard work to launch vigorous mass campaigns of tree-planting. All across the country, on either side of the Great Wall, both north and south of the Yangtze River, on the grasslands and the edges of deserts in north and northwest China, and along the southeast coastline, new forests have been set out. Forest districts, state forest plantations, state farms and people's communes have taken measures for forest regeneration and better overall forest management. All this has brought about notable achievements in Chinese forestry.

The Yellow River changed its course eight times in history and breached its dykes 1,700 times, leaving behind it old beds, tracts of sandy, alkaline wastes. Chengchow, Kaifeng and Shangchiu cities in eastern Honan, and Shanhsien County in southwestern Shantung, are located in such areas. Since liberation the people there have steadily built windbreaks, and their millions of *mu* of tree belts have markedly changed the natural conditions.

Irrational felling of timber before liberation resulted in serious water loss and soil erosion in western Hopei Province and along the lower reaches of the Yungting River. Wind-driven sand often filled up the riverbeds. Floods poured through the dykes, forcing rivers to change course and turning fertile fields into sandy wastes. Windbreaks built shortly after liberation to fix the sand have played a great role in controlling floodwaters and protecting farmland.

Before liberation, sandstorms every winter and spring were a threat to people in the western part of northeast China. More sand shifted southward every year, damaging and even burying cultivated land. To cope with this situation, the local

people have, since 1952, built sand-anchoring shelter belts over an area 1,000 kilometres from north to south and 500 kilometres from east to west.



Tree shelter belts in Fuyu County,
Kirin Province.

Vast expanses of sand in north-western Kansu and in the area south of the Yellow River in the Inner Mongolia Autonomous Region, all with little vegetation, shifted southeastward every year, often swallowing

up fields, pastures, canals, communication lines and even burying whole villages and towns. Since 1949, the people have fought this by growing grass and other vegetation to stabilize the sand. Large newly built shelter belts on the southern edge of the Tyngeri Desert along the Kansu Corridor and in northern Shensi now block the southward advance of the sand.

All along the coast, from the Yalu River in Liaoning Province in the north to the Peilun River in the Kwangsi Chuang Autonomous Region in the south, afforestation projects which will help resist sandstorms are also under way.

Building shelter belts on a large scale is an important factor in conquering nature and guaranteeing stable, high yields in agriculture. Through concerted efforts in the past 20 years and more, most of the barren and sandy regions have become green areas protecting farm and pasture lands from sandstorm. Lankao County along the old course of the

Yellow River in Honan Province has stabilized 95 per cent of its shifting sand. Tsaohsien and Shanhsien counties in Shantung now have set up many orchards and changed more than 200,000 *mu* of poor land along the Yellow River into fields giving stable, good yields.

The saplings planted by the Great Wall People's Commune in Wuwei County, Kansu Province, on the southern edge of the Tyngeri Desert have grown into big trees protecting its fields. Shelter belts in the barren hilly and mountainous areas south of the Yangtze River conserve soil and water, increase soil fertility and provide the people with forest resources. In Tienpai County, Kwangtung Province, a great wall of trees along the coast checks wind and sand.

In the lumbering areas of the northeast and southwest, replanting is carried on along with felling to ensure the supply of timber and to protect and continually develop forest resources.

Improving Farmland

The collectivization of agriculture has brought into full play the peasants' initiative for remaking nature and developing production. Much has been achieved in these respects.

The Tachai Production Brigade in Hsiyang County, Shansi Province, was a poor mountain village before liberation, its lands scattered on slopes and in gullies of loess. But, relying on collective efforts over the past dozen years or more, it has changed this situation by making terraced fields, hillside plots and other basic improvements to the land. Many small "man-made plains" have appeared there. Farm work has been mechanized, and average per-*mu* grain yield has topped the 1,000-*jin* mark, as against the less than 100 *jin* before liberation. Forestry, animal husbandry and sideline production have been developing rapidly.

Tachai has become a model for the whole countryside. People in rural areas all over China are eager to do as Chairman Mao has asked — **"In agriculture, learn from Tachai."** Building fields and water conservation projects in an all-round way, they conquer mountains, control rivers, plant forest belts, improve the soil and deal with salinization. The result is that the area of fields giving stable, high yields is continually expanding. In 1971 alone, the country increased by 30 million *mu* the area of these fields which will suffer from neither drought nor waterlogging.

Inspired by the Tachai spirit, the people on the Loess Plateau, affected most by water loss and soil erosion, have begun a mass movement to afforest mountains, transform gullies, make new fields and terraces, and utilize fertile riverbed land by building dams to change the river courses. In more than a decade, 10 million *mu* of terraced fields have been built and 30 million *mu* planted with trees and grass along the upper and middle reaches of the Yellow River.

Many formerly desolate plains and grasslands, deserts, and saline and alkaline swamplands have become fertile fields.

The famous "great northern wilderness" in northeast China is now a granary. Half the saline and alkaline lands created by the once uncontrolled Yellow, Huai and Haiho rivers have been transformed into fields which regularly yield good crops. The Shashihyu Production Brigade in Tsunhua County, Hopei Province, has waged a struggle to turn barren mountains into grain-producing farmland. Its members have built regulating and silt-collecting dams across a dozen gullies to control water loss and soil erosion. They have planted forests and built orchards over large areas. The formerly poor place is now a prosperous socialist village with farming,

forestry, animal husbandry and sideline occupations all developing rapidly.

Commune members in the desert areas of northwest China have also plunged into the task of transforming nature through collective effort. Over the past dozen years, they have built water conservation projects and planted trees in the vast desert. They have also had good success with removing sand to make fields and in improving the soil. With large tracts of desert being turned into oases, there is now 150 per cent more cultivated land in the Sinkiang Uighur Autonomous Region than before liberation.

Ancient Projects

IN very ancient times the ancestors of the Chinese nation had already built great dykes, irrigation systems, canals, and other well known construction projects.

Water Conservancy Works

It is said that in the days of Yu the Great (around the 21st century B.C.) the labouring people had built projects to control the rivers on the Huanghuai Plain, and their dredging and re-channelling had some effect in changing nature. During the Western Chou Dynasty (11th to 8th century B.C.) people in the present-day Weiho River valley in central Shensi Province began storing floodwaters for use against drought and dug channels that crisscrossed the plain. These were factors in promoting the economic development of the area.

Water from the Yellow River has been used for irrigation since the Chin Dynasty (3rd century B.C.). By the Ching Dynasty (1644-1911), 10 trunk canals and over 500 branch canals with a total length of 1,200 kilometres had been cut through the arid Ningsia Plain. The water, led off from the

Yellow River at the Chingtung Gorge, irrigated 2.5 million *mu* of farmland, turning this area into a fertile grain-producing valley.

Sinkiang, deep in the hinterland, has a dry climate and few sources of water. The people long ago devised the system of irrigation by *karez* — underground channels carrying subterranean water from the foot of the mountains to the farmland. The channels are constructed through a line of shafts located every few dozen metres and ranging up to 100 metres deep, which serve as air vents and passages for removing the earth. The shafts are linked underground, forming a subterranean canal from which water is brought up to the ground level. Effectively utilizing underground water, the *karez* system has turned many tracts of desert into farmland.

Among China's big ancient water conservation projects still rendering great service to agriculture are the Tukiang Dam irrigation system in Szechuan Province and the sea wall along Hangchow Bay.

The Tukiang Dam Irrigation System: Situated in the western part of the Szechuan Basin is a vast fertile plain with a dense population and flourishing agriculture. This is the 3,500-square-kilometre Chengtu Plain, which was formed by the flooding of the Minkiang River, a tributary of the Yangtze. Its plenty was not always there, but is the result of the labour of the people through the ages.

Before the Warring States Period (475-221 B.C.), the turbulent Minkiang River, slowing down as it passed from the mountains into the plain near the city of Kuanhsien, used to drop a great deal of silt which filled the riverbed, causing the river to flood. In 320 B.C. the local people dredged this section of the river to reduce flooding.

A more permanent project was begun in 250 B.C. At Kuanhsien, which is at the entrance to the plain, the people cut a breach-proof rock-walled course as the main trunk canal through Yulei Mountain. On the trunk canals leading from it and along the course of the river as it entered the plain, dykes and dams were built to regulate the flow of the river and distribute the water for irrigation. Altogether the people built 2,000 dykes and 10 trunk and 520 branch canals totalling 1,165 kilometres. These formed a complete network affording natural irrigation for more than three million *mu* of land on the Chengtu Plain, turning the area into a place of rich crops. This project has served through the past 20 centuries.

The big dykes were made entirely of baskets of woven bamboo filled with rocks. This indigenous method is still widely used because it utilizes materials readily at hand, and the result is both economical and durable. Already at that early date the ancient builders, taking the whole situation into consideration, constructed and maintained their irrigation system in a co-ordinated, scientific way to distribute the water rationally. Rivers and canals were dredged and dykes repaired every winter during the low-water season, in line with the law of the river flow and silt deposition. Such good traditional methods and experience have been carried down to this day.

Under the reactionary rule of the Kuomintang before 1949, the Tukiang Dam system was in a state of disrepair. The gradual silting up of the water course resulted in frequent disasters, and the irrigated area had dwindled to two million *mu*. After liberation, under the leadership of the Communist Party and the people's government, repair and expansion were undertaken on a large scale. The many new waterlocks and water distribution projects greatly improved the ef-



Tukiang Dam irrigation system.

The Hangchow Bay Sea Wall: This is the biggest among the numerous dykes built by the ancient labouring people along the length of the southeastern coast, in their brave struggle to develop agriculture and protect farmland from the pounding tidal waves. Hangchow Bay is shaped like a funnel and, as the tides surge towards the narrow end of it and are increasingly compressed, they rise higher and higher to form the famous "Chientang bore." They menace the plains on the north and south shores of the bay, often washing away houses, damaging farmland and turning the fields saline.

Since the beginning of the 7th century, in the Tang Dynasty, the local labouring people have maintained a stubborn struggle against these tides. Continually summing up their experience in blocking the tides and preventing salinization, they built dykes first of earth and later of stone. They, too, first used bamboo baskets filled with stones, but later changed to big stone blocks. Their construction developed from shoreline dykes to a massive broad-based sea wall made of stone blocks running down in steps to the ocean floor.

Historically, all reactionary rulers, being chiefly interested in exploiting the labouring people, paid little attention to the repair and maintenance of dams and dykes. The Kuomintang government merely used renovation and reinforcement

iciency of the system. This has brought irrigation to seven million *mu*, and made the Chengtu Plain into an agricultural area with stable, high yields.



Sea wall at Hangchow Bay.

huge stone blocks, rises 6-7 metres above the water and extends for a total distance of 300 kilometres (190 kilometres along the north shore and 118 along the south). It plays an extremely important role in blocking the tides and protecting the well-known "land of fish and rice" in the bay area.

Transport Waterways

Many large rivers flow through the eastern half of China on their way to the sea, but between them there are no natural connecting waterways. The ancients built a number of canals linking them, thus facilitating north-south water travel. Among these the Peking-Hangchow Grand Canal and the Hsingan Canal are the largest and have the most far-reaching influence.

The Peking-Hangchow Grand Canal: Stretching over 1,782 kilometres from Peking in the north to the city of Hangchow, Chekiang Province, in the south, it was built section by section through the ages. History records that in 486 B.C. the labouring people on the lower Yangtze cut the Hankou Canal, near present-day Yangchow in Kiangsu Prov-

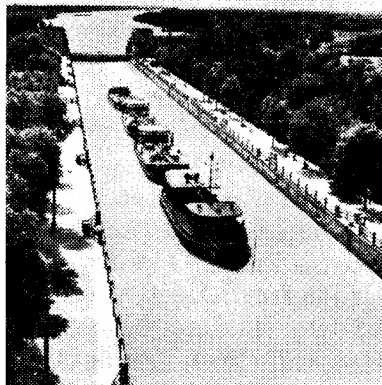
of dykes as a pretext for squeezing more money out of the people. After liberation, the Party and people's government led the local people in a tremendous campaign for dyke repair and extension. Today's structure, made entirely of

inice, linking the Yangtze and Huai rivers. This canal, lengthened and improved in later centuries, became the Grand Canal of today. The bulk of the large-scale work on it was done in the Sui and Yuan dynasties.

In the Sui Dynasty (581-618), the capital, Loyang in Honan Province, was the hub for canal construction. Beginning in the year 605, there were three massive canal-building projects within six years. The first section to be built was the Tungchi Canal, spanning 1,000 kilometres from Loyang to Chingchiang (Huaiyin) in Kiangsu. Another section, the Yungchi Canal, was more than 1,000 kilometres long and ran from Loyang through present-day Linching in Shantung Province to Tientsin. Later, the 400-kilometre-long Kiangnan Canal connected what is today Chenkiang in Kiangsu with the then foreign trade port of Hangchow. At the same time the original Hankou Canal linking two of these sections was renovated. The whole formed a 2,700-kilometre-long north-south canal ranging at various places from 30 to 70 metres in width. This was the first canal to link up the Haiho, Yellow, Huai, Yangtze and Chientang rivers. Big wooden ships could sail from Tientsin through Loyang to Hangchow. This canal, of such proportions, was dug by hand by the labouring people in half a dozen years.

After Peking became the capital in the Yuan Dynasty (1271-1368), the canals leading to Loyang fell into disuse. To avoid the roundabout route, a 600-kilometre-long canal (the Huitung-Chichow Canal) from Linching to Chingchiang was built in 1289. The marked variations in height in the region traversed by the canal where it cut through the Yellow River created sharp head drops, a problem that was solved by building 30 waterlocks to hold back the water and keep it of the proper depth, section by section, so as to facilitate transport. In 1292 was built another Yuan project, the North

Canal. It directed water from springs in the Western Hills outside Peking through the capital and the town of Tunghsien to its east into the Wenyu River and on to Tientsin. These two Yuan canals, connected with the Grand Canal constructed in the Sui Dynasty, provided a water route direct from Peking to Hangchow which was 900 kilometres, shorter than by the previous Sui Dynasty canal. Today this is known as the Peking-Hangchow Grand Canal.



The boat lock at Huaian on the Peking-Hangchow Grand Canal.

The Hsingan Canal: The Nanling Mountains in south China are the watershed separating the basins of the Yangtze and the Pearl rivers. A pass through them northeast of Kweilin in the Kwangsi Chuang Autonomous Region separates the northward-flowing Hsiangkiang River, a tributary of the middle Yangtze, and the southward-flowing Kueikiang River, a tributary of the Pearl River. During the Chin Dynasty, the 35-kilometre-long Hsingan Canal (also called the Lingchu Canal) was built along this pass, linking up the two river systems. The people blocked the Hsiangkiang River near the city of Hsingan in order to raise the level of the water and directed some of it into the Kueikiang River through the Lingchu Canal. Applying very scientific principles to overcome the sharp head drops and swift current

which endangered navigation, the builders made the canal along a zigzag course which slowed down the flow.

Through the Hsingan Canal and the Peking-Hangchow Grand Canal, all the big rivers in the eastern half of China are connected. These canals played an important role in north-south transport in ancient times before the days of good roads, railways and ocean navigation. Since liberation, in connection with comprehensive harnessing and control of the Yellow, Huai and Haiho rivers, much work has also been done on the Grand Canal. Large-scale renovation section by section has dredged and widened it and augmented its water sources. Dykes and waterlocks have also been built. Many sections are now navigable by 1,000-ton boats. Irrigation on both banks has been extended.

The Great Wall

Rising and falling with the ridges of the Pataling Mountains northwest of Peking, a gigantic rampart stretches off to the east and west like an immense dragon curling through the mountains. This is the Great Wall—a renowned project of ancient China. It runs from Shanhaikuan on the shores of Pohai Sea in the east to Chiayukuan in Kansu Province in the west, stretching through Liaoning, Hopei, the Peking area, Shansi, Inner Mongolia, Shensi, Ningsia and Kansu. More than 10,000 *li* (over 5,000 kilometres) long, it is known as the Ten Thousand *Li* Long Wall.

Construction of the wall began in the Warring States Period. The feudal states in the north of China, including Yen, Chao and Chin, built walls along the Yinshan Mountains. In the third century B.C., when China was unified under Chin, these separate walls were connected and extended to form



View of the Great Wall.

the Great Wall. Later feudal dynasties maintained the wall or reconstructed parts of it. Most large-scale work was done in the Ming Dynasty (1368-1644).

At some places along the Great Wall are branch walls which form an inner and an outer wall. The main wall stands 5-10 metres high and measures 5-8 metres across. Some sections are entirely of earth, while others are faced with brick or stone. The strongest part is that northwest of Peking, faced with huge bricks and stone blocks. Battlements rise above the top of the wall on one side and plain parapets on the other, with a roadway between. Watchtowers stand at intervals of 140 metres. The highest point on the wall as it winds among the mountains is 1,000 metres above sea level. The amount of brick and stone used in the Great Wall would build a dyke 2.5 metres by one metre around the globe.

